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MINING LAWS OF 1872 AND 1989

HEARING

BEFORE THE

SUBCOMMITTEE ON MINERAL RESOURCES
DEVELOPMENT AND PRODUCTION

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

S. 1126

TO PROVIDE FOR THE DISPOSITION OF HARDROCK MINERALS ON
FEDERAL LANDS, AND FOR OTHER PURPOSES

SEPTEMBER 13, 1990

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MINING LAWS OF 1872 AND 1989

THURSDAY, SEPTEMBER 13, 1990

U.S. SENATE,
SUBCOMMITTEE ON MINERAL RESOURCES
DEVELOPMENT AND PRODUCTION,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:05 p.m., in room SR-428A, Russell Senate Office Building, Hon. Jeff Bingaman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

Senator BINGAMAN. Good afternoon.

This is a hearing of the Subcommittee on Mineral Resources Development and Production of the Senate Energy Committee. The hearing today is on the royalty and fee provisions of S. 1126, which is legislation Senator Bumpers introduced that provides for the disposition of hardrock minerals on Federal lands.

This is a controversial subject on which people tend to have strong opinions. It is also a very important issue both to the public, which has legitimate expectations that the Federal Government receive a fair return for public resources, and to the mining industry whose economic viability may be affected.

Under current law the Federal Government does not receive any rents or royalties for hardrock mineral production on Federal lands. However, revenues are collected from other mineral production on Federal lands, such as oil, gas, coal and phosphates.

I am interested in learning today how a fair return to the public could be structured that would not unreasonably burden the hardrock mining industry.

Toward that end, we have today's witnesses to address a great variety of issues, including the advantages and disadvantages of a royalty, several different royalty systems, and how such systems would be administered. We also have asked witnesses to address fee provisions and the dispositions of any fees and royalties collected.

Let me mention a few administrative details before I defer to Senator Bumpers for his statement. We would ask public witnesses to try to limit their oral remarks to around 10 minutes. We will leave the hearing record open for 2 weeks for any additional comments or statements. Members also may have additional questions that they would submit in writing to witnesses.

Senator Bumpers, why don't you go right ahead?

STATEMENT OF HON. DALE BUMPERS, U.S. SENATOR FROM ARKANSAS

Senator **Bumpers**. Thank you very much, Mr. Chairman.

First of all, I want to thank Chairman Bingaman for scheduling this hearing this afternoon on royalty and fee provisions of S. 1126.

The basic question we have asked witnesses this afternoon to address is how to provide the Federal Government with a fair return for the private exploitation of public minerals. Historically governments have answered that question by the imposition of royalties which represented the sovereign's share of the minerals produced.

Most U.S. laws affecting the disposition of Federal minerals require some payment for those resources. The Mineral Leasing Act provides for competitive bonus bids, rentals, and a 12.5 percent royalty on oil and gas production. Under the Outer Continental Shelf Lands Act, a royalty of 16 2/3 percent is currently imposed on OCS leases in addition to bonus bids and rental payments. Federal surface mined coal is subject to a 12.5 percent royalty. Federal underground coal, geothermal steam, phosphates, oil shale, sodium, sulfur, potash and minerals on acquired lands are all subject to Federal royalties ranging from 2 to 8 percent of gross value, as well as rental payments.

The Mining Law of 1872, by contrast, does not impose any royalties or rents on the production of hardrock minerals on Federal lands. To me, and I suspect to the average American taxpayer, this indicates that the mining law does not provide the Federal Government with a fair return for its gold, silver, copper, and other minerals. And at a time when we are struggling to make up a staggering revenue shortfall in the Federal budget, it is hard for me to fathom why a profitable, multi-billion dollar industry should expect the Federal Government to give its resources away free.

The mining industry often argues that they should be exempt from royalties because the government receives economic benefits from mining through the payment of taxes and the creation of jobs. They do indeed do both, but so does the oil and gas industry, so does the coal industry. They also pay taxes and employ workers. Yet, when they sell Federal oil, coal or gas, they also pay a handsome royalty, and in most cases a bonus bid.

In fiscal year 1989, for instance, the Federal Government received $3.9 billion in receipts from onshore and offshore mineral leases. Coincidentally, the Bureau of Land Management estimates that precisely that amount, $3.9 billion, of hardrock minerals were removed from the public lands under the 1872 Mining Law without a penny of royalty or rent going to the Federal Government. And I personally think BLM's estimate is very low.

So, it should not come as a shock that I strongly support the imposition of a royalty on Federal mineral production. This is hardly an unprecedented idea. As many of you know, royalty provisions were included in virtually all the mining law reform bills considered by Congress during the 1970's, including S. 3086, the bill which was supported by the mining industry in 1977.

The 8 percent royalty rate and the fees included in S. 1126 are not etched in stone. I chose that figure because it is the same royalty generally paid by underground coal miners and because it will bring in a reasonable annual return—perhaps $300 million—to the American people who actually own the public domain minerals being mined.

The witnesses today have been invited because they have expertise in the legal and economic aspects of royalties and other mining costs, not because they support the provisions of S. 1126. I look forward to hearing their ideas on how we can best provide the public with a fair return on its hardrock mineral resources.

Thank you, Mr. Chairman.

Senator **Bingaman**. Thank you very much.

Senator McClure, did you have an opening statement?

STATEMENT OF HON. JAMES A. McCLURE, U.S. SENATOR FROM IDAHO

Senator **McClure**. Yes, I do, Mr. Chairman. Thank you very much, Mr. Chairman.

This afternoon we will hear testimony on the royalty and fee provisions of S. 1126, a bill to overhaul the 1872 Mining Law. And I might just parenthetically state the Mining Law has been amended dozens of times since 1872. So, while it may have that title and public perception may be that that is what the law is, the fact is the law has been changed dramatically and constantly since 1872.

I believe that it is critical that we closely examine the economic impacts, as well as the effects on mineral exploration and development which would result from enactment of these provisions. Frankly, the closer I look, the clearer it becomes that S. 1126 sets up a Federal leasing system for hardrock minerals, complete with limited terms for exploration and development, royalties, rental and surface use fees, and diligence and commercial production requirements. I believe that the components of such a leasing program, as laid out in S. 1126, will have a devastating impact on the domestic mining industry.

At the outset of this hearing, I think that it is important to clarify our goals in considering a policy for management of hardrock minerals on Federal lands. When the 1872 Mining Law was enacted, it was clear that the primary goal was to promote mineral development. Consequently, the law provides incentives to find and develop hardrock minerals on Federal lands. In reviewing the provisions of S. 1126, however, I am hard-pressed to identify any incentives to the mining community and find instead numerous opportunities to say no to mining, to borrow a phrase so often used by reform advocates.

With respect to imposing royalties in Federal hardrock minerals, my position is well-known and unambiguous. I oppose such royalties however structured. It is no secret that if mining costs increase without a corresponding rise in product prices, marginal operations will go out of business. Such increases would also reduce the competitiveness of domestic mines in international markets and decrease economically recoverable reserves.

Additionally, we must look at the tax revenue implications of a Federal royalty. While royalties may provide a new source of income, they would also reduce a company's Federal tax liability as well as the tax base for State and local governments which rely on those revenues to meet local needs. Add to this equation the administrative costs associated with verification of production, and collection and distribution of royalties, coupled with the effective elimination of some operations, and this Senator becomes more convinced than ever that the concept of royalties on Federal hardrock minerals is a bad idea.

There are those who say the Federal Government is not getting a fair return for its minerals. Apparently they do not see any value to the government in terms of the tax base, employment, and revenues to local communities generated by the mining industry, as well as the national security and balance of trade implications of developing minerals domestically. Reform advocates are alleging industry-wide windfalls with no share of these riches going back to the Federal Government. I hope that the testimony presented this afternoon will help to put some sense of reality into this issue of fair return to the government.

On the subject of fees, I strongly disagree with the apparent objective behind the diligent development provisions in S. 1126. The intention appears to be to force the prompt development of minerals. Instead, the effect of the provisions would be to encourage rapid turnover of claims or to force companies with little capital out of business or overseas. Minerals will only be produced when the market warrants their development. No excessive diligence requirement will change that fact. I am also opposed to the holding and surface use fees contained in S. 1126 because they will merely serve to discourage exploration and increase BLM's administrative burden.

I am particularly concerned about the lack of economic analysis available to accurately project the impact of the provisions of S. 1126. While advocating sweeping changes to the mining law program, supporters of reform have not, to my knowledge, provided the Congress with any kind of careful review of the economic effects of such modifications. Hopefully testimony to be presented this afternoon will give us a little flavor of the impact of the royalty and fee provisions of S. 1126. I feel quite strongly that any mining law reform proposal which is to be seriously considered by the Congress must be given careful economic scrutiny.

In summary, it is this Senator's view that the royalty and fee provisions contained in S. 1126 represent a complete change in policy direction from the goals of the 1872 Mining Law. Instead of promoting hardrock mineral development, these provisions reflect the goal of discouraging discovery and production of such minerals on Federal lands. If implemented, they would also have the effect of encouraging reliance on foreign countries for minerals necessary to our economy and national security. Recent events in the Middle East have illustrated the hazard and foolishness of promoting such policies.

Mr. Chairman, at this point I would like to include for the record a chart which illustrates the extensive number of controls on miners operating on public lands under current Federal, State and local law and regulations.

[The chart follows:]

REGULATORY REQUIREMENTS FOR HARD ROCK MINING ACTIVITIES ON PUBLIC LAND

AS OF NOVEMBER 1988

EXPLANATORY NOTE

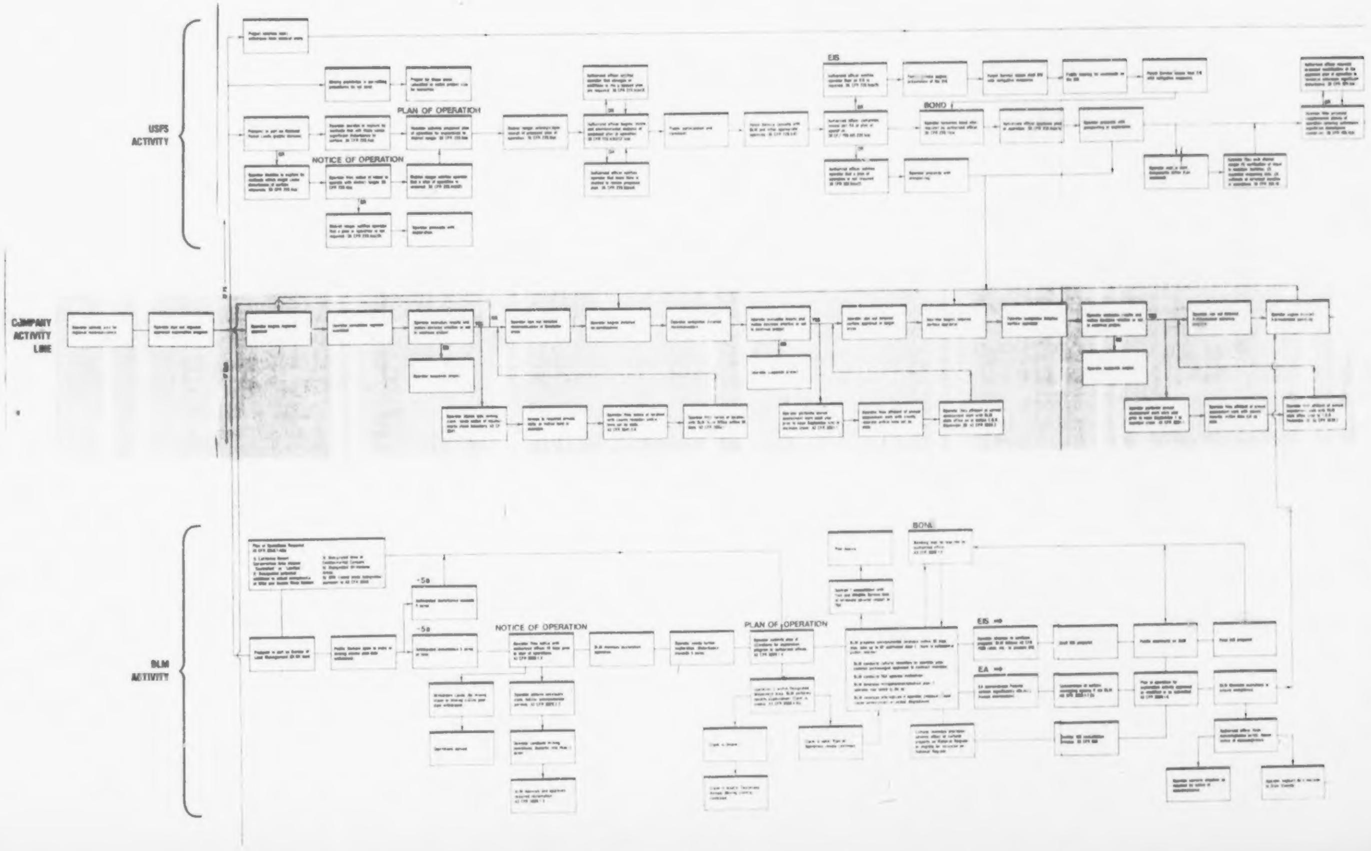
[illegible]

[illegible]

[illegible]

ABBREVIATIONS

[illegible]


USFS ACTIVITY
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COMPANY ACTIVITY LINE
BLM ACTIVITY
NOTICE OF OPERATION
PLAN OF OPERATION
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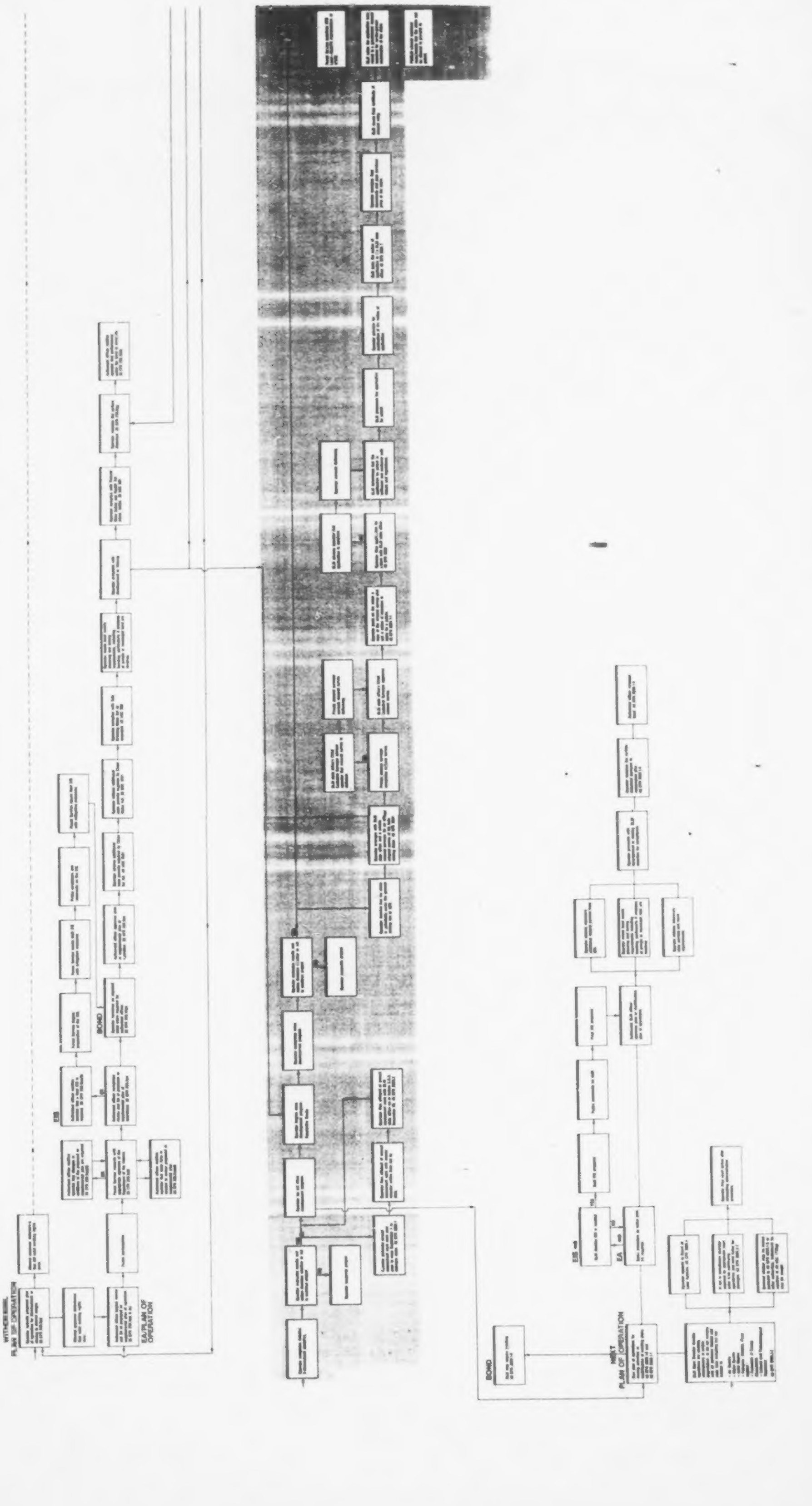
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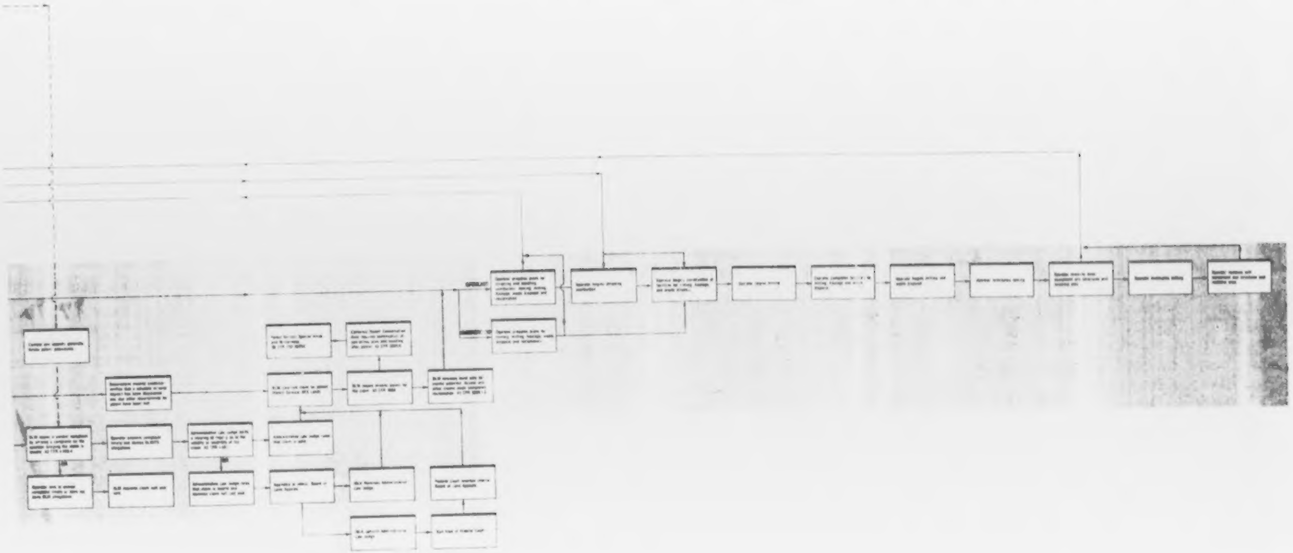

Senator McClure. Mr. Chairman, I would also ask unanimous consent that statements by the Western Mining Council, the National Inholders Association, the Multiple Use Land Alliance, Curtis Tungsten, Incorporated, North Central Cascade Miners Association, and numerous letters from individuals and companies who have requested their views be included in the hearing record may be so included in the record.*

Senator Bingaman. We will be glad to include those.

Senator McClure. Mr. Chairman, I am not going to ask that you include them in the record, but I do want to note that I have a petition the California Mining Journal has forwarded to us. The petition contains 17,319 signatures opposing any legislation which would repeal or grossly change the 1872 Mining Law. I would suggest that probably the Chairman would think this more properly resides in the files of the committee rather than spread upon the record.

Senator Bingaman. We will be glad to keep that in the committee files and note it in the record, but not include it in the record.

Senator McClure. Thank you very much.

Senator Bingaman. Let me also at this point introduce into the record a statement of Senator Tom Daschle which was prepared in written form to be included in the record, and we will do that at this point.

[The prepared statement of Senator Daschle follows:]

Prepared Statement of Hon. Thomas A. Daschle, U.S. Senator From South Dakota

Mr. Chairman, thank you for giving me the opportunity to testify today. I commend the Subcommittee for holding this hearing. I also wish to express my appreciation to Senator Bumpers who has undertaken the arduous task of bringing an outdated public land use law into the 21st century. This hearing will shed important light on many facets of this complex bill and enhance the Subcommittee's effort to refine and improve it.

I would like to begin by announcing that this week I became a cosponsor of S. 1126, the Mining Law of 1989. I took this step not because I agree with each provision of S. 1126. I do not. As my testimony here today expressing reservations about the 8% overriding royalty provision of this bill will indicate, I believe there are a number of modifications and improvements that can and will be made to this proposal.

Because the issues it addresses and the interests and individuals it will affect are so numerous, the crafting of final legislation will be time-consuming and difficult. S. 1126 requires careful scrutiny. It requires intelligent, serious input from the widest possible range of affected parties.

But, by my co-sponsorship of this bill, I seek to emphasize my belief that, hard as it may be, this is a road that must be travelled.

It is simply not acceptable to regulate public land use in the 1990's with a law written for the 1870's. It is not fair, wise or, in my view, possible.

A change is coming. Those who are serious about this issue, who understand its importance, should move to affect that change.

That is why I have added my name to Senator Bumpers' important effort. And it is why I am here today.

I am told I am the first Western Senator to cosponsor S. 1126. I hope my cosponsorship may help still the ill-advised claim of some that only those whose constituents are not affected, and who do not understand mining, can seek reform of the 1872 law.

I am proud to be from a mining state. This law will sharply affect my constituents. It will affect one of the largest gold mines in the Western hemisphere, a mine run by one of the finest companies in the world, Homestake Mining Company. The mining industry has a long and proud history in South Dakota, and I intend to make certain this tradition continues.

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* See Appendix II.

But I believe the way to do that—to protect responsible hard rock mining—is to face the inevitability of reform and to work to guide and perfect it for the benefit of all.

It is a fact that the 1872 Mining Law, which governs hard-rock mining on public lands, desperately needs changing. It is totally inadequate to address the concerns of 1990 and beyond.

S. 1126 makes several important changes to the archaic 1872 Mining Law. It abolishes the surface patent, restructures the diligence or annual work requirement and ensures an adequate return to the Treasury from the exploration and development of hard-rock minerals from public domain lands.

S. 1126 is not a perfect bill. There are parts of the bill that need further refinement. The subject matter before us today—royalties and fees—may be one of those parts.

In S. 1126, there are provisions for an overriding royalty of 8% of the value of production, a one-time claim recordation fee of $100, an annual filing fee of $100 per claim, and a surface use fee for the mineral patent of not less than $5/acre. By far, the most controversial and significant of these is the 8% royalty.

Philosophically, I favor royalties and surface use fees for mining on public lands. It is my belief that public lands represent a public trust, and the American people should be compensated for values lost or resources taken from their lands. But it is imperative that these fees be appropriate and not punitive to the mining industry. Based on our experience in South Dakota, an overriding royalty of 8% may be inappropriate.

South Dakota has been working with royalties or severance taxes since 1935. The State has enacted legislation at both extremes; from an overriding tax of 6% of gross proceeds from 1937 through 1941 to no severances taxes from 1970 through 1974. Traditionally, the State has been responsive to fluctuations in market conditions for the mining industry; raising taxes in the good times, lowering them in the bad. The current State law is a severance tax of 2% on gross proceeds plus 8% on net income. That is the highest severance tax in the nation. In 1989, the State collected $7.56 million from these taxes.

Both the industry and the Administration have spoken in favor of a surface rental fee, as included in the Rahall bill, which would remain steady regardless of market conditions and would be simpler to administer. Another option may be a net proceeds tax or a combination of taxes on gross yield and net proceeds, similar to the tax structure in South Dakota.

I am not sure what system is best for the nation, but I do know American taxpayers are not served by the total lack of royalties or fees that exists under the current law. As cosponsor of S. 1126, I look forward to working with Senator Bumpers and the Committee to further refine this bill and bring mining law into the 21st century.

Thank you for the opportunity to testify today. I would be happy to answer any questions you may have.

Senator BINGAMAN. Our first witness today is Senator Larry Pressler from South Dakota, and we are very pleased to have him here to make a presentation and statement on this bill.

Senator Pressler.

STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM SOUTH DAKOTA

Senator PRESSLER. Thank you very much, Mr. Chairman, members of the committee. I shall be brief and summarize my views.

First I want to commend members of the committee for holding this hearing regardless of your views on whether the Mining Law of 1872 should be substantially revised. It is an extremely important issue that merits our examination.

I realize today's hearing focuses specifically on fee and royalty provisions of the mining law and Senator Bumpers' reform proposal, but I would like to share with you the view of many South Dakotans on the 1872 Mining Law generally.

As a Senator from a State with significant mining activity, I represent individuals whose jobs are in the mining industry. I also represent citizens who would like to see all mining activity on all lands stop. Others feel differently. As you are well aware, citizens are deeply divided on these issues and feel strongly on both sides.

Mr. Chairman, in my State of South Dakota, five major gold mining companies, some foreign owned, are operating large scale surface mining for gold on roughly 2,400 acres of land in the Black Hills. Current expansion proposals cover at least 1,300 acres, including 800 acres of U.S. Forest Service land. Additionally, there are numerous exploratory drilling operations on Forest Service lands in the Black Hills.

South Dakotans are worried about the trend to explore and mine on public lands in the Black Hills and the environmental effects. We have a statewide initiative on the ballot this November which, if passed, would set an overall acreage limitation on large scale mining operations on public and private lands in the Black Hills at 3,100 acres. Once 3,100 acres is met, then acre-for-acre reclamation must take place to offset any further expansion.

On large scale gold mining operations, the State of South Dakota has a 2 percent tax on gross sales and an 8 percent tax on net profits. That has resulted in roughly $8 million in revenues to the State, roughly 1.7 percent of total State revenues. There is a $1,000 application fee to apply for a permit, and a $1,000 fee to amend that application. Additionally, there is a $100 annual fee and report required to be filed to keep the permit current.

This year I have held many public meetings in South Dakota. The Mining Law of 1872 comes up again and again at these meetings. Specifically many South Dakotans are particularly concerned about the land patent provisions and the extremely low fees required to purchase Federal land; $2.50 per acre or $5 per acre to obtain ownership of Federal is a virtual giveaway. I realize there are other fees and requirements involved, but the perception is that those fees are far too low. I encourage the committee to thoroughly review those fee levels. I believe Federal land is worth much more. Anyone who has visited the beautiful Black Hills National Forest in western South Dakota would certainly agree these lands are worth much more.

While it is important that responsible mining activity be permitted, in this time of deficit spending, I think it is very appropriate that we thoroughly examine the fees included in the laws.

So, on behalf of many South Dakotans, I urge this subcommittee to give this matter serious consideration. I believe many provisions of the 1872 Mining Law need to be revised, and look forward to working with the members of this committee on this important matter.

I again commend you for holding this hearing and thank you for giving me this opportunity.

Senator **Bingaman**. Thank you very much, Senator Pressler.

I did not have any questions. Senator Bumpers, did you have any questions?

Senator **Bumpers**. I did not have any questions.

Senator **Bingaman**. Senator McClure, did you have any questions?

Senator McClure. I have no questions. I commend Senator Pressler for the statement that he has made.

I agree with you, Senator. This committee has an obligation to look very carefully, and I hope we will look very carefully at the very issues that you have raised, as well as the other several issues that are not before the subcommittee this afternoon but are implicit in reform legislation.

Thank you.

Senator Bingaman. Thank you very much.

The administration today is represented by Mr. Cy Jamison, the Director of the Bureau of Land Management in the Department of the Interior. He is accompanied by Donald Sant, who is the Deputy Director for Valuation and Audit, Royalty Management, as I understand it.

Mr. Jamison, we appreciate your being here very much. Why don't you proceed with your statement?

STATEMENT OF CY JAMISON, DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY DONALD SANT, DEPUTY DIRECTOR FOR VALUATION AND AUDIT, ROYALTY MANAGEMENT, MINERALS MANAGEMENT SERVICE, DEPARTMENT OF THE INTERIOR

Mr. Jamison. Thank you, Mr. Chairman. I request that my full statement be included in the record, and I will try to summarize as briefly as possible.

I appreciate the opportunity to come here today to discuss the mining law. First, I want to assure you that the administration stands ready to work with the Congress to review the mining law and other mining issues. We want to ensure that mineral development is compatible with contemporary provisions for multi-use of public resources.

In that regard, we are making changes in mining law administration through changes in policies and rules. In the past year, we have developed a whole new monitoring inspection program, set new standards for documenting the inspections, revised the bonding policy and issued a national cyanide management policy.

In addition, we will be initiating regulation changes that will, first, expand the list of authorized financial guarantees for bonding purposes; second, require financial guarantees for notice level operations; and third, minimize the future potential for illegal residency trespass on mining claims. We also will be looking at possible changes to the current $100 annual labor requirement.

In addition, legislation may be needed to address: first, the definition of common versus uncommon varieties which needs to be narrowed. Examples would include sand, gravel and pumice. And second, we should explore alternatives to the $2.50 or $5 an acre fees for patenting the surface of a mining claim. These fees seem too inappropriate in the 1990's.

While supporting some selective mining law changes, the Administration opposes S. 1126 for reasons outlined in my written testimony. In brief, before the administration can consider supporting collection of royalty on hardrock minerals, a number of critical questions must be answered. The key question is: will the royalty give advantage for the mining of one mineral over another. This may sound like a simple question, but it drives at the heart of making the hardrock minerals policy by requiring royalties.

Other questions leading from this major concern are: a royalty may fail to recognize the tremendous costs associated with locating the mineral deposit. Secondly, it can reduce economic activity associated with mining. Third, it may infringe upon the tax base for States and counties that rely on tax revenue from mining, as was just mentioned by Senator Pressler. It may also reduce Federal tax revenues since royalty payments are tax deductible business expenses. Fourth, it could effectively reduce the size of economically minable ore bodies. Fifth, it could jeopardize the economic efficiency of recovering many associated minerals. And finally, many royalty scenarios require establishment of new or expanded bureaucracies to manage, enforce, audit and disburse revenues as a part of this new authority.

My written statement discusses several royalty scenarios as you have requested, Mr. Chairman.

First, is royalty based on the value of production. With most leasable minerals, royalties are based on the production and do not include the value of a company's labor and capital added during post-production processing. One method to assign a value to the marketable mineral is netting back, identifying an end product. Netting back is an accounting nightmare. Every operation has a unique processing and refining process. Therefore, assessable costs and profits would have to be determined individually for every mining, milling and processing operation.

Secondly, we looked at net smelter return. This method is basically the return from the ore less the smelter charges. The government would be collecting the royalty on the company's contribution to the value of the raw ore before processing, milling, et cetera. This is inconsistent with accepted practices used for leasable minerals.

The third scenario was percentage of gross income for calculating depletion. Percentage depletion is a specified percentage of gross income from the sale of mined minerals during the tax year. The basis for percentage depletion is gross income from mining. Although this avoids the pitfalls of many other scenarios, it fails to net out the tremendous costs associated with locating the deposits.

Fourthly, we might look at point of first sale. This method applies a royalty at the first identifiable arm's length transaction. This method results in unequal treatment of different minerals and the collection of a royalty on the value added by the company. For example, in one highly integrated gypsum operation, the product sold from the wallboard plant is the first time gypsum mined from the mining claims leaves the operator's control. In comparison, operations that mine gemstones or precious metals may be able to verify an arm's length transaction of the raw ore without refining it. They would enjoy a significant savings in their royalty obligations.

Fifth is by mineral type. This method imposes a different royalty on different groups of minerals. This method raises several questions. For example, what are the profitable minerals? Usually they are those minerals with the highest risk such as gold. In addition, the success of many gold operations depends upon the world price of gold. At $420 an ounce, gold is a profitable material. At $300 an ounce, many operations may be looking to close their doors.

Another question relates to the handling of associated minerals. For example, gold is often found in association with copper. In the past, when the world price for gold was low, copper was mined as an associated mineral. However, now when the price of gold is high, copper can, in effect, become the associated mineral. Establishing separate royalty rates under shifting circumstances could be a significant legal and administrative burden. In addition, a royalty may make the associated mineral uneconomical to mine.

Mr. Chairman, these are difficult issues. Resolving them will take long and careful analysis. We believe much more economic analysis must be done before a royalty can be imposed.

This completes my statement. I would be happy to answer any questions.

[The prepared statement of Mr. Jamison follows:]

PREPARED STATEMENT OF CY JAMISON, DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR

I appreciate the opportunity to appear here today to discuss the royalty and fee provisions of S. 1126. Before I address those issues I will comment briefly on the Mining Law of 1872 which S. 1126 would replace for all intents and purposes.

While supporting selective Mining Law changes as discussed below, the Administration opposes S. 1126 for reasons outlined in my testimony.

Nonetheless, I want to assure you that the Administration will work with Congress to review the Mining Law and other mining issues to ensure that mineral development is compatible with contemporary provisions for multiple use of public resources.

The Mining Law of 1872 has worked well over the past 118 years. It has stimulated mining of strategic minerals needed for national defense as well as other minerals which fall within its coverage. Over the past quarter century, operations under the Mining Law have been significantly changed to comply with provisions of the environmental laws enacted at both the Federal and State levels. These laws include the Clean Air Act, the Federal Water Pollution Control Act, the Solid Waste Disposal Act, and the Endangered Species Act, among a host of others. Requiring special mention is the Federal Land Policy and Management Act of 1976. Section 302(b) of that Act directs the Secretary to take any action necessary to prevent unnecessary or undue degredation of the lands. Section 603 mandates wilderness inventory and allows for continued mining operations that do not impair the wilderness suitability of a study area.

As I testified before the House Interior Subcommittee on Mining and Natural Resources, the Administration supports specific changes in annual labor requirements, common/uncommon varieties, patent procedures, and fee structure.

In that regard, there are some provisions that may warrant reexamination. Secretary Lujan has said the $2.50 or $5.00 per acre payment for the surface, on issuance of a mineral patent, is inappropriate. We support the concept of fees for surface use by mineral producers once mining commences and the surface is not available for other uses. This should apply equally to patented and non-patented minerals.

The President's 1991 budget proposes to replace the the annual assessment work expenditure with an annual, direct payment to the Treasury as a means of demonstrating good faith. The payment would be $100 per claim. A portion of the revenues generated by the fees will be utilized to fund the Mining Law Administration program within the BLM. The failure to make the necessary payment would be grounds for BLM to cancel the mining claim and would allow another interested private party to assert possession of the ground in the same fashion as the current system.

This new fee would replace, not add to, the current Federal requirement that holders of mining claims annually perform $100 of assessment work to maintain their claims and certify their effort with BLM.

This fee would not increase costs to claimants. Since it would be in lieu of the existing $100 annual assessment requirement, claim holders would be relieved from having to go out and perform otherwise unwarranted surface disturbance work solely to maintain a claim in good standing. Therefore, it is actually a better approach for the claim holder.

The March 1989 GAO Report entitled "Federal Land Management: the Mining Law of 1872 Needs Revision" discussed the payment of fair market value or the elimination of patents to address the issue of the Government's receipt of "nominal prices" for the surface of a mining claim. We believe there are numerous alternatives to be explored. Among these are:

—Eliminate the transfer of the surface estate but allow patent for the subsurface estate within the mining claim.

—Raise the fees paid for the surface estate within the mineral patent, keeping the transfer of title to the mineral estate within the mining claim as an incentive to taking the risks.

—Allow purchase, at fair market value, of the surface estate of a patented mining claim, after actual mining operations have commenced.

As I testified on September 6, 1990, before another subcommittee, I do favor narrowing substantially the definition of common/uncommon varieties, making more of those salable.

Your Subcommittee requested that the Department specifically address the royalty and fee provisions of S. 1126. The Mining Law of 1872 contains no provisions for the collection of a royalty on the production of hardrock minerals extracted on Federal lands because its framers intended to reward the successful prospectors/miners by allowing them to benefit fully from the financial gains associated with producing and marketing the located minerals.

The rationale for this reward is that hardrock mineral exploration and development are considered high risk economic ventures and the financial benefits should go to the individual or company willing to face those economic risks. Under the Mining Law the burden of making a discovery rests solely with the claimant. The risks and costs associated with discovering the mineral, along with the often high costs and uncertainties associated with developing and producing the claim, can make a hardrock mining venture marginally economic or even uneconomic. The same can be said for entire segments of the industry. The current system ensures that the potential gains of discovering and producing a claim are as high as possible, thus offsetting the tremendous risks. This is a key component of the Mining Law and, in the minds of those that participate in this industry, a factor that keeps individual properties and the industry alive.

The effects of a royalty are similar to a tax. As with a tax, economic activity may be curtailed when subject to a royalty. If royalties or taxes are too great, mining ventures may become unprofitable or returns on investment may fall below expected levels and cause the owner to cease operations. This not only includes the mining activity itself, but also secondary activity associated with mining. For many rural areas mining is the predominant economic activity that provides the economic base for the communities. A Federal royalty can in many instances eat into the tax base for States and counties that rely on taxes on mining activity occurring within their jurisdiction.

A disadvantage of the royalty alternatives being considered is they do not recognize the miner's significant contribution to value in locating and defining the ore body. A royalty, even one based on mine mouth production, does not recognize the significant contribution to value that the miner has made in locating and defining the extent and grade of the deposit. Unlike most leasable minerals, those minerals covered by the Mining Law have extremely high exploration costs compared with the expected value of the minerals. Exploration costs which effectively reduce the potential financial return the miner can anticipate when a find is eventually made are not considered in royalty calculations.

With the financial disincentive associated with a royalty, the effective size of the ore body that can be economically mined is reduced commensurate with the magnitude of the royalty. An increase in the marginal cost of extracting the ore simply increases the grade of ore needed to cover the operating costs (cut-off grade). The miner will only mine ore that has a marginal return equal to or greater than the cost of mining. Deposits with wide spacial variation in mineralization, e.g. disseminated with in-grade pockets and uniformly disseminated deposits, have cut-off grades defined more by mining costs than by geology. Thus, disseminated ore bodies have a high potential to be adversely affected by a royalty. Further, the effects may be subject to wide variations within a single mining district as was observed in uranium operations in the Grants, New Mexico district. Separate mines showed reductions in ore reserves ranging from 57 to 35% for the increase in the cut-off grade due to the imposition of a State severance tax.

The recovery of associated minerals can also be adversely affected by the imposition of a royalty. Often the mineral deposit being mined also has other minable minerals associated with it. These associated minerals are also mined and marketed due to the low additional cost of extracting them. However, any significant increase in the cost related to the extraction of these associated minerals will likely make them uneconomical and result in the associated minerals being left behind. An example of an associated mineral that is currently produced, but could be left unmined, is molybdenite in a high copper content/low molybdenum content porphyry deposit. Molybdenite, an ore of the metal molybdenum used in alloying steel, cast iron, and non-ferrous metals, is recovered by a separate milling circuit. Imposition of a royalty could lead to closure of the molybdenite mill circuit on existing operations, and loss of the resource to the tailings pond. This scenario is particularly likely when molybdenum prices are depressed.

A frequent criticism of the current system is the presumed loss of potential income to the Federal Treasury from a royalty payment. However, the estimation of the foregone revenue is not as straightforward as it might seem, nor is the magnitude of the loss what might be expected. Two significant factors must be considered in making such revenue estimates. First, the production and production value that are observed today are a result of an industry developed under the provisions of the Mining Law. Those items identified above as the advantages of the Mining Law help define the size and profitability of today's industry. Faced with a royalty, many participants will likely pursue other ventures in the international marketplace, resulting in lower domestic mineral production.

The other key factor that complicates any calculation of revenue gains associated with a royalty is the relationship between taxes and royalties. The Federal Government collects various forms of taxes from individuals and companies involved in the hardrock mining industry. For industrywide analyses, the applicable income tax rate is usually assumed to be 34 percent on income less all business related costs. A royalty payment is such a business cost for income tax purposes, and is deducted from a company's income, thus reducing the company's tax liability. Where the Federal Government retains all royalty revenues, there is a net gain to the U.S. Treasury. However, under S. 1126, half the royalty revenue would be granted to the State; the Federal Government would retain only half the royalty revenue, while the company would reduce its tax obligation by the full amount of the royalty cost.

You requested that the Department comment on the advantages and disadvantages of various royalty alternatives that could be applied to minerals currently covered by the Mining Law of 1872. These alternatives include (1) a royalty based on the value of the production, (2) a royalty based on net smelter return, (3) a royalty based on percentage of gross income for calculating depletion, (4) a royalty based on the sale value of the mined product, and (5) a royalty rate and/or base that depends on the mineral type. We appreciate the opportunity to discuss these issues today.

VALUE OF PRODUCTION

A major responsibility of the Department is the collection and disbursement of coal, oil, gas and other mineral receipts from mineral leases on Federal, Indian, and Outer Continental Shelf lands and the verification of reported productions. The majority of these mineral revenues are in the form of production royalties. The determination of the amount of royalty payable and the return to the public, under a mineral lease, are generally a function of the value of the production, the royalty rate and the amount of production. As part of the responsibility for proper collection of royalty, the Department has the responsibility for valuing mineral resources for royalty purposes and for production verification. As such, the Department is concerned with S. 1126 because of the implications regarding not only whether a royalty on hardrock minerals is appropriate but also the feasibility of successfully implementing some of the alternative schemes under consideration.

S. 1126 calls for an overriding royalty of 8 percent of the value of the hardrock mineral production. The bill does not, however, provide any further clarification on what constitutes the production to be valued, nor is it clear how value is to be established.

For the sake of furthering our discussion, we will assume that production is considered the raw ore. We make this assumption for simplicity. With many leasable minerals, royalties are based on the production, in marketable condition and may or may not include the value of the company's labor and capital added during post production processing. As there is no history of royalty for locatable minerals, it is not clear at what stage each mineral or ore should be considered "marketable" so application of the general rule to these ores is uncertain.

Also what the value of the "marketable" mineral may be is uncertain since not all the production of a particular mineral would actually be sold at that point, but rather the actual transaction could occur further down the line in refining.

One possible method used to assign a value to the marketable mineral is to identify an end product that is marketed and reduce the product value by the value added in the processing and refining steps. This process is often referred to as "netting back", and presupposes a knowledge of company and industry operations that the Department does not possess. This process, although conceptually simple, is an accounting nightmare. Since processing and refining processes may be unique to particular operations, what costs and profits should be allowed by the Department would need to be determined, perhaps individually, for every mining, milling and processing operation.

Net Smelter Return.—A net smelter return calculation is applicable only to the metals industry. It refers to a calculation which begins with the market value of a refined metal and then deducts from that value smelting, transportation, associated handling, and other costs to derive a value of the milled or concentrated mineral product. A net smelter return contractual arrangement is common in the metals industry because not all mining companies are affiliated with smelters and vice versa. A net smelter return computation may be employed in either a tolling or sale arrangement. In a tolling arrangement the milled product is not sold to the smelter; instead, it is smelted and refined by the smelter for a fee and the refined metals are then returned to the mine company for final sale. The main problem in use of net smelter returns as a base for royalty is that it neglects the large expenditures that occur in the exploration phase that result in discovery and creation of the asset.

Percentage of Gross Income as Defined for Depletion Purposes.—Percentage depletion is a specified percentage of gross income from the sale of mined minerals during the tax year. Gross income from mining does not include any value attributable to mineral products that have undergone further, nonmining preparation before being sold. A percentage of gross income, even limited by a percentage of taxable income, is still just a tax which lowers the profitability of being in the very high risk mining business. It very likely will drive people to other sectors of lower risks or more acceptable profits, thus resulting in fewer discoveries and a smaller domestic mineral asset. Further, as in the case using net smelter returns as a base, it also neglects the cost of exploration.

First Point of Sale.—This alternative applies a royalty at the first identifiable arms-length transaction involving the mined product. Besides the drawbacks associated with royalty schemes in general, we identified two significant drawbacks of this type of royalty scheme—unequal treatment of different minerals and the collection of a royalty on the value added by the company.

Arm's-length sales have been the principal criterion for establishing the value of a mineral product. However, the approach of applying the royalty rate to the first arm's-length sale would create inequities among the royalty payers because the condition of the lease product could vary substantially even when dealing with the same mineral product. For example, one metals producer may sell its production at arm's-length as a milled or concentrated product. Another producer of the mineral, which is part of an integrated mining and smelting firm, would have its first arm's-length sale of production in the form of a refined metal. Applying the same royalty rate to a ton of lead concentrates worth about $380 versus a ton of refined lead metal worth about $1,000 would clearly result in disproportionately high royalties being paid by the integrated producer.

Additionally the point of first arms-length transaction may be significantly different for different minerals, leading to significant inequities. In a highly integrated operation that involves extensive processing, refining, and even combining with other materials, the product that is finally sold, via an arms-length transaction, will have little resemblance to the original mineral production. In the case of one highly integrated gypsum operation, the product sold in the wallboard plant is the first time gypsum mined from the mining claims leaves the operator's control. On the other hand, operations that can verify an arms-length transaction of the raw ore without incurring any additional processing or refining costs (added value) will enjoy a significant savings in their royalty obligations. This advantage may be due to the type of mineral being produced or a unique situation one particular producer enjoys. Minerals that are mined from mining claims, but are not refined include block pumice, pearlite, gemstones, and precious metal.

By Mineral Type.—This royalty scheme imposes a different royalty for different groups of minerals. Presumably the thought is to capture a higher royalty on the more profitable types of minerals. This has the intuitive appeal of being more equitable, but this alternative has a number of drawbacks and raises a number of questions. One question is what are the profitable minerals. The most profitable minerals may also be those minerals with the highest risk. In determining profitability, another question is whether the exploration costs and failed operations are part of that determination. Gold is often considered highly profitable. However, such ventures are very risky. Besides the obvious risk in discovering a deposit and the high cost of operation, the success of many gold operations is dependent on the world price of gold. The effect of changing commodity prices over time significantly affects the profitability of gold production. At $420 an ounce, gold is a profitable mineral, at $300 an ounce many operations may be looking to close their doors. These kinds of price swings can result from events not directly related to the supply of gold or gold mining, such as a change in inflation expectations.

The issue of handling associated minerals may also need to be clarified to the extent royalty is levied on ore. Often gold is found in association with copper. In times of a low world price for those precious metals, gold is mined as an associated mineral. However, when the price of gold skyrockets, copper production can in effect become the associated mineral. These metals are coming from the same ore body, but if they have different royalty rates, there is a question as to which of the rates, or whether both, apply, and at what point. Answering these questions requires the careful accounting of all the factors that are used to suggest a particular mineral should be treated differently. This would likely turn into a significant legal and administrative burden. In cases where associated minerals with different royalty rates are produced, this approach becomes even more cumbersome. This burden would simply be to establish the rate to be applied. To determine the royalty base, a method including those alternatives discussed above would need to be employed.

Other Alternatives.—Some proponents of the collection of a royalty on minerals covered by the Mining Law have suggested that a royalty should be based on the overall size and/or value of the ore body. This is based on the premise that the larger and more valuable a deposit the higher the royalty should be. This alternative is especially aimed at the Government sharing in any windfalls that may occur when an especially valuable deposit is located and mined. In addition to many of the drawbacks identified for royalties in general, such a scheme requires some estimate of the total recoverable resource associated with the claim. This is generally an impossible task for many mining claims. The total recoverable resource can only be determined when the mining of the ore body is completed. Even then establishing the extent of the deposit may be in question. As mining technology and costs change and the world price of the commodity increases, old "mined out" deposits are often reopened. Valuable gold deposits that are currently being mined in the U.S. would not even have been considered deposits, much less economically minable, twenty years ago.

As I mentioned earlier in this testimony, a disadvantage of the implementation of the above royalty provisions would be the increase in the administrative workload. From the Department's viewpoint, the increase in workload would primarily focus on the effort necessary to accurately verify production and collect and distribute royalties from hardrock minerals. Much of this accounting workload is amenable to automation, thereby reducing the demand for increased staffing. However, the demand for inspection and enforcement and audit staff necessary to ensure proper payment of royalties for production would certainly rise to reflect the additional hardrock operators reporting and paying royalties.

FEE AND RECEIPTS

The question of fees and receipts is another important matter worthy of consideration. Land management agencies should recover their administrative costs. But any fee system on hardrock mining operations must be carefully constructed so that costs of administration and collection are not excessive. The Independent Offices Appropriation Act of 1952 (User Charge Statute) gives us the authority to impose charges for services which provide special benefits or privileges to an identifiable non-federal recipient above and beyond those which accrue to the public at large. We have used this authority extensively in the mining law administration program. We do not see the need to impose the fees proposed by S. 1126. We are opposed to modifications to the mining law which are duplicative of existing legislative authorities. The Appropriation Act allows the imposition of fees for administrative actions as deemed appropriate.

We object to the high fees—for recordation, annual filing, and diligence in S. 1126—as they apply to exploration activities. We believe they are ill-conceived and potentially destructive. This is especially true with regard to those companies that provide most of the initial exploration as they will force those companies with little capital out of business. As such, these fees may only provide an incentive to transfer exploration activities overseas rather than accommodate the purposes for which they were proposed.

The fee provisions of S. 1126 would be costly, complex, and difficult to administer. For example, the provisions of S. 1126 would require annual inspections of mining claims. At present, we have 1.2 to 1.3 million active mining claims filed under Sec. 314 of FLPMA. In addition, the provisions would require a determination of validity for each exploration claim filed; determination of annual surface use fees; review of land status records for all filings; and verification of production and determination of the value of mineral production necessary to collect royalties. Such efforts translate to the need for substantially more money and labor at the Federal level to administer fee collection. In addition, a complicated and costly fee-system would be a hindrance to the actual development of minerals on Federal lands.

For example, provisions of S. 1126 would force the Secretary of the Interior to hold recording location notices for 90 days until it is determined whether there are any rival claimants. If so, the Secretary would have to determine who has the "exclusive right" to explore for hardrock minerals. The current policy is to let rival claimants settle the exclusive or possessory right question in court without the interference of the Federal government. The holding and determination of exclusive rights could literally add years to the recordation of a claim and the development of a producing mine. In addition, higher recordation and diligence fees would substantially increase already high exploration costs.

The proposal in the President's 1991 budget to establish an annual mining claim holding fee of $100 is our preferred alternative to the fee provisions of S. 1126. This fee is in lieu of the current requirement in the Mining Law of 1872 that $100 worth of assessment work be accomplished annually. This alternative would allow the Bureau to continue collecting a $10 filing fee for new locations and a $5 filing fee for transfers of interest and amendments instituted in 1989.

For the last few years, the BLM has explored efforts to recover the costs of administering the Mining Law program. As I said, in 1989, all existing filing fees were increased and new fees were instituted in the program. At present, the BLM is conducting a cost analysis for processing mineral-related documents for its entire minerals program. Under the guidance of the Department of the Interior's manual for Cost Recovery, we are working to establish "fair and equitable" fees for all programs, while considering direct and indirect costs to the Government, value to the recipient, public policy or interest served, and other pertinent facts.

We are opposed to limited primary terms for mining claims. Mineral exploration and development are extremely time consuming and should not be limited to primary terms for mining claims. History has shown that many operations do not come on line until after 15 or more years of extensive development work and permitting.

We support appropriate levels of surface use fees to provide for fair return for use of federal lands. However, surface use fees should only be applied to mineral producers, not explorationists. As I discussed earlier, exploration is a high risk economic venture and is very sensitive to additional financial disincentives.

Finally, in answer to your specific questions, we believe that all fees collected should be retained by the Federal Government. Further, surface use fees could, subject to appropriations, be retained as offsetting receipts by the surface management agency bearing the costs of preventing unnecessary or undue degradation while managing mining activities. Other fees could also be retained to administer the cost of the Mining Law program. Using fees for abandoned mine reclamation is a reasonable approach to addressing this historic problem.

As I stated previously, the Administration supports selective Mining Law changes involving annual labor, common/uncommon varieties, residential occupancy, patent procedures and fees. The royalty alternatives embodied in S. 1126 have many problems and could pose many technical difficulties for the Department.

Nonetheless, I want to assure you again that the Administration will work with Congress to review the Mining Law and other mining issues to ensure that mineral development is compatible with contemporary provisions for multiple use of public lands.

This concludes my statement. I will be pleased to answer questions.

Senator BUMPERS [presiding]. Thank you very much, Mr. Jamison. I will make my questions fairly brief.

Mr. Jamison, just to start where you left off, entrepreneurship and taking of risks is what America is all about, isn't it?

Mr. **Jamison**. That is correct, sir.

Senator **Bumpers**. Why would you make a distinction? For example, when you mentioned here in the latter part of your testimony, you were talking about the prices of minerals going up and down and at some time it may be unprofitable to mine minerals if there is a royalty. We have a 12.5 percent royalty generally on onshore oil and gas leases in this country, and the oil prices in the past three years have gone from $10 to $30. We get 12.5 percent of $10, or we get 12.5 percent of $30, whatever it is.

And I do not understand why we have ever made the distinction. I understand initially back in 1872 when Ulysses Grant signed this bill it might have made a little sense. But I do not understand why this particular industry mining certain, particular minerals, hardrock minerals, ought to just have a bird nest on the ground.

Mr. **Jamison**. I would like to reply on this in two areas. They have I think some grave concerns, and I think they need to be carefully thought out.

I am not an expert geologist. I am not even a geologist. I have a minor in geology. First, most minerals usually are not found singly. In other words, when you are smelting for gold, generally you come up with silver, maybe even some exotics, rhodium, tritium, whatever the other ones are. And if you have a royalty on the gold and a different one on those other associated ones, if a company is only making 2 or 3 percent on, say, the exotics that are coming off, then there is no purpose to rerefine that ore. They just dump it. And I think for conservation of the resource, if that is the only reason, we ought to have a full method without any government encumbrance and letting the marketplace really drive it to pick up those other minerals that they are mining. I think that is very important.

In my home State of Montana, we have a platinum mine. Some of the spinoffs of those are very hard to refine out. In fact, they are all refined overseas. And so that is why I think before one says 12.5 percent on everything, you have to look at it very carefully—or 8 or whatever the number was—because you are talking like oil and gas. The only thing that is coming up out of the hole besides water is oil and gas—two very basic. When you take a shovelful of highly enriched ore, it is a whole different picture. And those are some of my concerns there, sir.

Senator **Bumpers**. But isn't that also getting a little bit of the squeal out of the pig? They are there for one particular purpose, but they get an additional benefit because it happens to be there. If it weren't worth something, they would not go through the problem of mining it and sending it to Britain to be refined, would they?

Mr. **Jamison**. I guess I would agree partially with you, sir. But let me say, for example, in the gold mine operations that Senator Pressler referred to, those are I'm sure heap leach operations. They are going through the old mining districts that were in the Black Hills. That is why we had Custer's last stand in fact.

But if you really got down to it, where do you put the emphasis on which you're after? If you are going to promote the production of gold, I think that the government steers a lot through taxes or royalties. If you are going to promote the production of platinum, you would probably do it by a different method. Now, how do you do those both together? That is really the question.

I am answering your question with a question, sir, and I understand that.

Senator **Bumpers**. You made a comparison with oil. The people in my State who drill for oil and gas tell me it is a very high risk operation. They pump $1 million into a hole, and they find nothing.

Mr. **Jamison**. The average, if my friends in the oil business are right in Montana, is you have about—it used to be about seven dry holes for every production, and now I think it is up as high as 14 to 1.

Senator **Bumpers**. Now, I will give you an analogy. In my State, we have a park with the only diamond mine in North America. Our State flag has a diamond in the middle of it. Most people do not know that, of course, but that is symbolic of the diamond mine in Arkansas. We have always just allowed people to take a little, old garden hand tool. And we charge them $2.50, and they go out there and grub around in the dirt. And every year they find diamonds anywhere from 3 to 15 karats. And it is a lot of fun and it is sort of a thing that we are proud of.

But recently a group decided that the area probably has very high potential for commercially minable diamonds. And so, the State allowed them to start core drilling to determine whether or not commercial mining is feasible. Now, a Federal court has stopped the drilling of that because to drill that is inconsistent with the grant we got from the Land and Water Conservation Fund when we established that as a State park back under the direction of that young, dynamic, good-looking governor they had then.

[Laughter.]

Mr. **Jamison**. The compliment is well-deserved, sir.

[Laughter.]

Senator **Bumpers**. McClure can hardly wait to respond to this.

[Laughter.]

Senator **Bumpers**. My point is that they are going to core drill it before any decision is made. They have, and they may get a chance to drill more, but right now there is a temporary restraining order against any further drilling.

But I can tell you that that land belongs to the State of Arkansas. We bought it while I was governor, and I can tell you that if they find commercially minable diamonds there and if the Federal Government does not object under the provisions of the grant to the State of Arkansas, we will charge them an arm and a leg to mine those diamonds. But if that land was on Federal property and somebody happened to find diamonds on it, they would go apply, after spending $100 every year for 5 years, for a deed to the land and pay no royalty.

I do not want to go far afield. We are trying to confine this hearing this afternoon, and I do not want to do the whole waterfront. We are trying to confine it to royalties.

But why should the State of Arkansas—and I expect our governor—there would be an offer to impeach him. He needn't even run for reelection if he were to give somebody the right to just go in there and mine those diamonds and say it is all right because you are creating a tax base and you are providing jobs. And yet, on Federal property that is exactly what we do.

How would you respond to that? Is it really Uncle Sap instead of Uncle——

Mr. **Jamison**. No.

Senator **Bumpers**. Why is Arkansas so much smarter than the Federal Government about how they handle their minerals?

Mr. **Jamison**. It must have been that former governor. I don't know.

[Laughter.]

Mr. **Jamison**. We have to look at the real big picture on this. That is the exotics I'd call it. There are very few diamonds in the world, period.

You are talking approximately one-fourth or maybe more of the United States of America when you change the mining law. And this is a world economy we live in, and you have to make a statement. It is a policy you are setting on royalties because that policy is going to say how we are going to compete on the world market. And that is very important from a national perspective.

I am sure that you can find individual examples. For instance, in my home State of Montana, we have the only active platinum/palladium mine in the United States, the only chrome in the United States. It is a unique thing, but we do not control the world market on that.

But if you look nationwide at all of the Federal lands that are available for mining activity, and if you put X percent on this, that and the other, you are addressing the world market because that is the ball game we are in. And I think that is the question you have to ask yourself before you do that. How are you going to impact the world market? Are we going to affect our companies on a world market? And it just goes on and on. I keep answering your questions with questions, but those are the concerns of the administration, too. Just how does this play in the big ball game? And that is our concern.

Senator **Bumpers**. I do not know how many States have hardrock mining going on on State lands, but I dare say there would not be a State that would permit hardrock mining on their lands without bonds and without royalties. You are willing to concede they are going to have to start putting up bonds to mine on BLM lands. You are willing to concede that. And I must say you have come a long way on the royalties, and I appreciate that.

But some of these arguments about how hardrock mining is different from anything else—Senator McClure has 17,000 plus signatures. I would think that you could get a signature of every person in the United States that is involved in mining on Federal lands. If I were mining out there and I had this kind of a deal, I would be carrying petitions night and day and lobbying everybody in Congress. Please don't take this little deal away from me.

And this is not venal. This is not vindictive. We are talking about what is fair. There isn't anybody in the private sector of this country that would permit this. There isn't a State that would permit this. There is only other country in the world I know of that would permit it, and they charge royalties on almost everything except gold.

I think right now, in all fairness, Cy, we are down to the point where we are talking about what kind of a royalty are we going to have, what will be the fairest, easiest to correctly determine than anything else.

I might have a couple of other questions.

Mr. **Jamison**. Can I just respond?

Senator **Bumpers**. Yes.

Mr. **Jamison**. We are not quite that far as the administration is concerned. We have not bought off in having a royalty and arguing on the numbers. I think that before we could even be convinced to look at that, the information is going to have to be presented to us that shows that it has these impacts or does not have these impacts. We are not even to that stage as far as the administration is concerned. So, at this point, we are still opposed to a royalty.

Senator **Bumpers**. Well, now, are you talking about a fee or a royalty?

Mr. **Jamison**. I didn't comment on the fee, sir.

Senator **Bumpers**. So, you are saying you are not down to the point where you accept a royalty of any size?

Mr. **Jamison**. That is correct.

Senator **Bumpers**. I understood that you were.

You have proposed a change in the fee schedule.

Mr. **Jamison**. That is correct. I didn't say we were opposed to a fee, no, sir.

Senator **Bumpers**. You are telling me that so far as the BLM and this administration are concerned, they are still opposed to imposing any kind of a royalty on hardrock minerals on Federal land.

Mr. **Jamison**. Until we can see the full picture. We have opposed your bill, but not all parts of it, because we feel that they ought to pay fair market value for a patented mining claim. And I think most in here would agree that that probably needs to be changed. But we have not bought off on a—I think you have an 8 percent. Is it 8 percent?

Senator **Bumpers**. No, I am not suggesting——

Mr. **Jamison**. If that's the number.

Senator **Bumpers** [continuing]. Sign off on 8 percent, but you have not signed off on anything, not one-tenth of 1 percent.

Mr. **Jamison**. That is correct.

Senator **Bumpers**. Senator McClure?

Senator **McClure**. Thank you very much, and thank you, Mr. Jamison for making that very clear. The administration shows great wisdom.

[Laughter.]

Senator **Bumpers**. As soon as we get him back to Idaho, we are going to change your mind.

[Laughter.]

Mr. **Jamison**. Oh, I know the gentleman who is going to replace him, and he thinks about the same way.

Senator **McClure**. Cy, without debating it, all of the provisions—because I would agree with you and I agree with Senator Bumpers. There are some changes in the law that I think would be constructive and are supported by almost everyone that I know of in the mining industry who recognize that some changes should be made. And I think there are some others who believing that some change is inevitable, are trying to shape that change to make it workable if it comes even though they do not like it.

My concerns are two or three. This provision that is criticized by many made sense, indeed, as Senator Bumpers said, when President Grant signed the law. It has made sense many, many times since as Congress looked at these provisions and either reaffirmed them or did not change them.

I guess the greatest difficulty I have in discussing it with my friend with Arkansas and others who simply do not understand why they are treated differently is to explain why, indeed, they are treated differently. In 1920, the Mineral Leasing Act was adopted. Later when the Common Mineral Varieties Act was adopted and when FLPMA was passed, it was reviewed. It has been reviewed through the 1970's and into the 1980's, and reaffirmed in each instance by the Congress of the United States as being an appropriate national policy.

A basic distinction was made in 1920 between the fossil substances, oil, gas and coal, and hardrock minerals. Have you reviewed the record, or do you know why at that time the Congress made a distinction between oil, gas and coal and hardrock minerals?

Mr. JAMISON. Sir, I didn't review it to look for that, but I think I understand the basics of why they did that. Yes.

Senator McCLURE. Could you explain it to us and to the public in words the public understands because Senator Bumpers keeps asking this question, why? We have a 12.5 percent royalty on oil and gas. We collect royalties on coal. Why don't we collect royalties hardrock minerals?

Mr. JAMISON. I think the bottom line is basic geology. There are two things. One is that we can more or less determine within a parameter where you are going to find oil and gas, where you are going to find coal, and we can usually determine the amount that we find.

Secondly, on the hardrock side, they do not follow any rhyme or reason. There is a lot of geology tied into it, but I know from basic classes it goes up one way and the dip and the strike and everything. They have some trends in it, and there are some formulas, but it does not always follow the rule of hoyle. And that is one of the reason I think there was a big difference.

That was my understanding, sir. Maybe I didn't state it clearly.

Senator McCLURE. I agree with you that that is one aspect of the question.

There is another that appeals to me, and that is that finding oil and gas in spite of the fact that we can tell, well, it ought to be there, it shouldn't be there, we know where to go look. In some respects you can say the same thing about hardrock minerals because highly mineralized zones are identifiable geologically, and that is where geologists spend most of their time looking for valuable mineral deposits.

But in oil and gas, you either find it or you don't find it. Now, that is obviously not correct, but it is more largely correct than it is with respect to hardrock minerals. If you hit a reservoir of oil, you know whether it is large enough to produce or not, and you make a decision. And generally if it is, the return is pretty great.

And certainly while coal seams can be thin and they can be marginal, generally speaking, the coal that is mined lies in very large deposits or it isn't mined. And while there may be a marginal return, there is a very large body of coal to be recovered. In hardrock minerals, it is very marginal recovery in almost every instance. You do not find very many rich mineral deposits anymore. And so, the operations tend to be much more marginal.

Secondly, it is a lot harder to tell. You can drill an oil field, and you have a pretty good idea of the size of the reservoir. You can drill in a coal field, and you know the thickness of the seam. And you go out and drill a hardrock deposit, and the geologists do an awful lot of guessing what the information means. So, there is a great deal more uncertainty about what is actually underground. If it a seam deposits, the seam goes this or that way. It pinches out or broadens. It disappears completely or maybe you run into another.

Mr. JAMISON. You said it much more eloquently than I did, Senator, but that is what I was trying to say.

Senator MCCLURE. So, both the marginal nature of the operation and the uncertainty of the information is much, much different in a hardrock deposit than it is in oil, gas or coal. Is that not correct?

Mr. JAMISON. Yes, that is correct.

Senator MCCLURE. Mr. Director, you have indicated that there is some uncertainty about the economics. One of the phenomenon of imposing a royalty is that an operation that was marginally successful—it has an economic rate of return that justifies mining—is rendered uneconomic by the imposition of a royalty. Is that not correct?

Mr. JAMISON. Well, if their profit margin in Senator Bumpers' bill is 8 percent or less, absolutely.

Senator MCCLURE. And if indeed the imposition of the royalty makes it uneconomic, the mining stops.

Mr. JAMISON. I have not seen too many that lasted very long if they didn't. That is true.

Senator MCCLURE. What is the loss to the Treasury of the United States, just the direct loss to the Treasury that can be anticipated from the imposition of a royalty?

Mr. JAMISON. It is really hard to estimate, Senator. It depends on what the royalty would be, and you have to back it off. We have not done any estimates on that. I just do not have a number.

Senator MCCLURE. I understand that. I am not certain it is possible to come up with a number that means anything unless you eat dill pickles and ice cream and go to bed and have a bad dream and come up with a figure.

I am not exactly sure how you come up with a figure because one of the difficulties you have is not just the associated minerals to which you made reference, but the absolute physical variation in every operation, associated minerals in one instance, the different chemistry of the mineralization in another instance, the location of the mine, the depth below the surface, the difficulty of separation of the materials. There are so many variables that are involved. You pump a barrel of oil, that is relatively straightforward although certainly the people in the oil industry will indicate there are great variabilities in oil fields, but not nearly as great as the costs and recovery methods that are required with respect to hardrock minerals. I do not know how you go about estimating what the cost is of a copper deposit, of a copper recovery per pound or per unit of value because they vary all over the board. I am not sure how you go about estimating the cost or value of a mineral in place without having gone through the milling process to know just what the costs of milling may be.

Am I off base?

Mr. **Jamison**. And it changes daily.

Senator **McClure**. I was going to get into that too, the changes daily.

Mr. **Jamison**. One of the things that I also have a concern about, on oil and gas, we operate under unitization agreements where you have four or five operators join in a unit and it is agreed on who gets what percentage of this. The ore bodies in hardrock vary so much that I do not know how we would put together those packages to even give us any kind of a simplified management tool from a government perspective. Where is the choke point to collect the royalty if you did? It would be tough to do it fairly, and that is the point.

Senator **McClure**. You have unitization agreements because drainage is possible. But when you are in a hardrock mineral, particularly if it is a vein structure, you have entirely different rules with respect to the ownership of that mineral. Is that not correct?

Mr. **Jamison**. That is correct.

One of the things I do have a concern about though, Senator, is a lot of the western gold operations are going fairly wide, especially with the heap leach, and we are seeing where, if they cannot buy up all of the partners in it, that could cause a conflict in it because this partner would say my share of that is X, but the end product might not actually dictate that because it does not run equally through the area.

Senator **McClure**. Well, a vein structure has a different rule about ownership than does a bedded deposit.

Mr. **Jamison**. That is right.

Senator **McClure**. And that is quite different from the pools that occur in oil and gas.

Mr. **Jamison**. That is right.

The bottom line is that it is not simple. It is a very, very complex industry from my understanding, and before we jump on this, we ought to know what we are really going to do.

Senator **McClure**. Can you describe for the committee a little further than you did in your statement the difficulty of determining which product to which the royalty is applied? You mentioned gypsum, for example.

Mr. **Jamison**. I would like to use my home State again, Montana, to show the complexity that that might be.

Currently it is mined for platinum. Platinum is sold overseas to the Japanese and others. It is actually refined, I think, in Belgium. One of the refined products of that is rhodium. And there is a family in there. They are all in the same area of the periodic chart. It is my understanding that is a very expensive and marginal refining process because they are after the platinum. If we did not have that, 5 or 6 or 8 percent might make the difference of whether they go after that other mineral that is brought up, which is rare.

Conversely, recently it just flip-flopped. That just went through the ceiling. I think rhodium is—I heard it was like $3,000. I do not know whether I have the mineral right. One was $3,000 last year, and now I hear it is going up to $10,000. So, that becomes the valuable mineral instead of the platinum which is originally what we went after. And so, that is the complexity of operating in a world market and operating with a royalty.

Senator McClure. Well, in the northern Idaho mining district, most of the ores are associated ores, silver, lead, zinc, gold primarily. When lead prices are low and zinc prices are high, the zinc carries the operation. When silver prices are low, then they have to look for something else. There is only one mine that I know of that really depends upon the silver market alone even though it is the major producer of silver in the United States. They are associated minerals, and the values fluctuate. And you are correct that one time one mineral carries the load, and another time another does.

But when you go down into the ground to get the ore out, first of all, you have to find it, and then you have to go on to the vein structure. And you have to remove the rock that is not valuable and send only the ore out of the mine, only the ore that carries the mineral that you are trying to recover, sometimes a very narrow vein structure, sometimes broader. It goes immediately into a mill.

Is the value upon which the royalty would attach the value of the ore as it leaves the mine or is it the value of the ore as it leaves the milling process? How would you apply it if you were asked to apply a royalty to the return from a silver mine?

Mr. Jamison. I would not hazard on that because the Senator asked us to look at four different types of royalty. Basically you are saying where are you going to take the royalty in the process. And there are down sides to every one of those, and that is why I cannot tell you which one. There is not a preferable one at least in this gentleman's mind right at the present time.

Senator McClure. Is the government entitled to a rate of return on the investment made in the processing of ore?

Mr. Jamison. Yes, they are. Through the taxes we get it.

Senator McClure. You get tax, but are you entitled to a royalty return?

Mr. Jamison. I do not think so unless we can be convinced otherwise. Right now we are not.

Senator McClure. Is the government entitled to a rate of return on the expense of processing the ore, either the capital or the O&M expense?

Mr. Jamison. We usually get that through the tax process, don't we, Senator?

Senator McClure. You certainly do get it through a tax process if, as a matter of fact, there are any net profits.

Mr. Jamison. Maybe I am missing your point, Senator.

Senator McClure. No. I am trying to figure a way of asking questions that would allow you to get on the record some of the concerns which I have.

[Laughter.]

Mr. Jamison. Senator, I submitted a statement of about 18 pages, and I think they cover most of your concerns, sir.

Senator McClure. Yes, I'm sure it does.

[Laughter.]

Senator **McClure**. But I am trying to figure a way to get through to intelligent people——

[Laughter.]

Senator **McClure** [continuing]. Who listen to the debate who are presented with facts who will make rational judgments. Now, I realize I am sitting in the halls of Congress, and asking for rational judgments here is an oxymoron.

[Laughter.]

Senator **McClure**. It sounds so easy to say let's get a fair rate of return. Let's impose a royalty. And you are telling me it is difficult. It is difficult because the complexity of the mining structures, the geological structures. It is complex because of the chemical nature of those structures. It is complex because of the differences in valuation of minerals and associated processes. And one that you mentioned a moment ago, but I cut you off and we will get back to now, the fluctuation of minerals' values. While you have not commented particularly with respect to the fee part—you have not been questioned about that—it is in your comments.

One of the difficulties that I have with the current mining law the way it is administered today is the difficulty of someone, a prudent man under the prudent man rule, making a discovery of a valuable mineral on the public lands and filing a claim. He has made a discovery. He holds that mineral. At the time he discovered it, the market would justify mining. That is one of the rules that is used. The market goes to heck as it periodically does, and no prudent man would spend one more dime in mining operations on that particular mining location. Isn't that correct?

Mr. **Jamison**. That is correct.

Senator **McClure**. And so, what is a prudent operation at one day becomes imprudent the following day because of market conditions.

Mr. **Jamison**. That is correct.

Senator **McClure**. Now, the person who holds that claim and therefore hopes to be able to mine also hopes to be able to hold that claim during the period that the market is depressed. Miners being notably optimistic, they just know the market is going to come back, and sometimes it does. And sometimes it comes back the next day or next week or next month or next year. There are varying periods of time in the market fluctuations. Isn't that correct?

Senator **Bumpers**. How about those of us in the stock market? Doesn't the same principle apply to us? I just lost my rear the last 2 months. Nobody is feeling sorry for me.

Senator **McClure**. I didn't ask anybody to feel sorry for you.

[Laughter.]

Senator **McClure**. But I didn't ask anybody to file a tax on you other than whether you made an income profit or not. And the instance here is we are going to impose royalties whether there is profit or not.

I am concerned about the stability of a mining industry if on one day a mining claim is valid, the next day the mining claim is subject to be called invalid. And then it depends upon who can get back on the ground quickest when the market comes up again.

Wouldn't that be the result of this question of market fluctuation that says it is prudent to mine today, but imprudent to mine tomorrow?

Mr. **Jamison**. Yes, if you were just looking at it from that aspect, I would have to agree with you. Yes, sir.

Senator **McClure**. So, don't we need to have a policy in place that recognizes the presence of a valuable mineral and the fluctuation of the market that may say on a given day or during a period of time, it does not make any sense to mine it, but there is a reasonable expectation that sometime in the future it may be wise to mine it?

Mr. **Jamison**. That is correct.

Senator Bumpers, I hope you will forgive me. We are getting off the ranch here a little bit. But the Administration has always supported the basic four tenets, and we said that we are not going to support any revision, reform or whatever you want to call it of the mining law unless those are included. And one of those very important tenets is tenure. And if you do not have tenure to the thing, I don't think that we as the Administration can support it. That is really the gist of where you are getting back to. And that has it, and the 1872 Mining Law has tenure.

Senator **McClure**. That also is implicit in the question of a fee structure, particularly when a part of the fee structure is a holding fee or a diligence fee because under the current law we recognize that it does not make any sense to force people to operate when they have to operate at a loss. That decision they ought to make, and the government ought not to say to that person you operate today or lose your claim.

Mr. **Jamison**. We have slightly disagreed with you on that, Senator, as I think you know. We have proposed a $100 annual fee.

Senator **McClure**. That is why I am getting into it.

Mr. **Jamison**. And we have one other place where we felt that a fee was probably appropriate. If you did change the patenting provision, if it stayed in public ownership—the surface is all I am speaking of—and it was not being used for mining, then we ought to have a return to the Treasury for that.

Senator **McClure**. I understand both ends.

Well, the current law requires that to hold an unpatented claim, the claimant must do development work and spend money every year even though the current market condition does not justify full scale mining. Is that not correct?

Mr. **Jamison**. That is correct.

Senator **McClure**. And the holding fee that you have suggested is an alternative to that annual development work.

Mr. **Jamison**. That is correct.

Senator **McClure**. It has the advantage of not requiring any disturbance of the earth when it makes no sense to disturb the earth. It has the advantage to the claimant of clearly allowing him tenure without having to do that kind of work.

Mr. **Jamison**. That is correct.

Senator **McClure**. It is a little easier in an administrative sense too because you do not have to go out and verify the development work. You just see whether the payment was made.

Mr. **Jamison**. That is correct, sir.

Senator McClure. The down side to that, however, is it may be easy for somebody to make that annual payment and sit on a claim with no intention of developing the claim at the present time.

Mr. Jamison. That is a possible down side. Yes, sir.

There is one more up side though. The up side is we return some money to the administration from the mining law—that was one part of the Administration's proposal—and also return some money to the Treasury. I think if our estimates were correct—remember, we had some arguments over the numbers, how many would fall out. We estimate that we would have about $98 million of income off of 1.2 million mining claims. And we estimated that we would return $78 million to the Treasury and then the rest would be returned to the BLM for administration of the mining industry.

Senator McClure. I understand BLM always needs more money.

[Laughter.]

Mr. Jamison. At least on this.

Senator McClure. And I would expect you to come up here and try to figure out a way to get your hands on some more.

[Laughter.]

Senator Bumpers. You are going to lose a friend here in a minute if you start talking about the BLM and how wonderful they are with him.

[Laughter.]

Senator McClure. Well, I understand that. All I am trying to get is from you some idea of what the administration thinks the mining law ought to accomplish with respect to royalties and fees. That is what we are talking about today. We are not talking about the other question of the separation of surface and subsurface on the operation of the patent law.

Mr. Jamison. That is correct.

Senator McClure. Although I think it is helpful when people hear a discussion about the mining law to understand that $2.50 an acre is scarcely what it costs the patentee. That is the return to the Treasury for the final act. Isn't that correct?

Mr. Jamison. That is correct. There is a lot of pre-work that has to go in there. They have to validate the claim and all that. Yes, sir.

Senator McClure. And I would agree with Senator Pressler that certainly the land in the Black Hills or anywhere else that I am aware of is worth a lot more than $2.50 an acre. That is scarcely either the criticism or the test, although it is easy to articulate as a criticism for those people who do not understand the operation of the mining industry.

But it is also one of the things we can change to eliminate one of the abuses which is minuscule but sometimes does occur. Upon what percentage of claims are patents issued and then the land converted to other uses?

Mr. Jamison. I cannot give you that, but we are averaging patenting about 40 claims a year, and I do not have an estimate. The GAO went out and looked at some very selected—they knew what they were going out to look at before they left Washington, in my opinion. And if they would have looked at the broad spectrum, most of the places that are patented are used for mining. And they found some that were patented because there was a valuable deposit there, and the surface was used for some other purpose.

Senator **McClure**. How many claims are patented each year?

Mr. **Jamison**. About 40.

Senator **McClure**. How many claims are there?

Mr. **Jamison**. There are 1.2 million.

Senator **McClure**. So, there are 40 patents issued out of 1.2 million claims?

Mr. **Jamison**. That is correct.

Senator **McClure**. Doesn't that indicate to anyone that maybe it is cheaper to hold the claim than it is to get the patent?

Mr. **Jamison**. Well, it is very difficult to get a patent. You have to prove to us that you have discovered a valuable mineral deposit.

Senator **McClure**. Why don't all 1.2 million simply buy that land for $2.50 an acre?

Mr. **Jamison**. They cannot because they have not met the discovery requirement. It is very difficult to meet the discovery requirement. We go out there and check. We make sure that you have met the discovery requirement of finding a valuable mineral.

Senator **McClure**. The fact of the matter, most claims are held because the mining claimant finds it cheaper and easier to hold the claim than it is to attempt to get a patent.

Mr. **Jamison**. I cannot answer that for two reasons. One is that I think if it is a legitimate mining operation, if they found a valuable mineral, in some cases they are going to go for a patent. Others just go in and mine it on an operations plan. It just depends on the company and what their purposes are. And others do not go for the patent because they can hold it, and also others don't go because they know they can mine it without a patent.

Senator **McClure**. Well, you have 40 out of 1.2 million per year, and you have only a fraction of that 40 that are converted to other uses.

Mr. **Jamison**. That is correct.

Senator **McClure**. So, to change the law to prevent that abuse seems to me to be an overreaction to a relatively small problem, but certainly it can be changed.

Mr. **Jamison**. That is correct.

Senator **McClure**. Mr. Jamison, I may have some other questions to submit in writing for a response to the record, but I have no further questions at this time.

Thank you, Mr. Chairman.

Mr. **Jamison**. Thank you, Senator.

Senator **Bumpers**. Mr. Jamison, I hope we have covered most things since we have been here because if we haven't, we are going to be here a long time. Senator McClure and I both feel very strongly on opposite sides of this issue, and we could go on forever trying to make our points.

I have just three rather quick questions. No. 1, you mentioned a moment ago, that if they had to pay royalties, the government might lose money because a royalty payment is deductible. And that is true, but if somebody were paying a $1,000 royalty and they deducted it on their income tax, if it was a corporation, that costs the government $340, or 34 percent, because that is the corporate tax rate. This is just a hypothetical case. Right?

Mr. **Jamison**. A hypothetical. You are correct on that, and then I will give you another hypothetical.

Senator **Bumpers**. But if they got a $1,000 royalty, they still come out with about $660 more than they otherwise would have come out with.

Mr. **Jamison**. Yes. One of the basic premises under all your scenarios is they are making money. And if the profit margin is above whatever your royalty is——

Senator **Bumpers**. Well, if they are not making any money, it does not cost the government anything anyway because they are not going to pay any taxes.

Mr. **Jamison**. I think most of them pay their taxes as they go.

Senator **Bumpers**. Well, I understand that, but I am saying if they are not profitable. They can deduct that, but if they are not profitable, it is not going to cost the government anything because they would not be paying any taxes anyway.

Mr. **Jamison**. You missed the point. Between zero and whatever your royalty is is the additional—they have that additional profit margin. That was the point I was trying to make.

Senator **Bumpers**. Let me ask you if you are familiar with the Acquired Lands Act of 1947.

Mr. **Jamison**. Yes, sir.

Senator **Bumpers**. I will just give you an illustration. A good, big portion of the lead in this country is produced on acquired lands, but if it is acquired lands, we charge a 5 percent royalty. And as a matter of fact, in 1989 we collected $5.3 million in royalties on lead mined from acquired lands, most of that I think from nine lead mines in Missouri. But if you mine lead on a unpatented claim, you do not pay the Federal Government anything.

Mr. **Jamison**. That is correct.

Senator **Bumpers**. Now, number one, do you think that is fair, and what is the rationale for charging a royalty on acquired lands, but not on unpatented lands?

Number two, how would you feel if you were a lead miner and you were mining on acquired lands and having to pay a 5 percent royalty and compete with a guy that was on other Federal lands, not acquired lands, who paid no royalty? Do you think that is fair?

Mr. **Jamison**. First of all, you have to go back and take the situations as they are. Acquired lands are not under the Mineral Leasing Act.

Senator **Bumpers**. I understand that.

Mr. **Jamison**. Secondly, under the acquired lands, they are leasables. So, that was my understanding that in that particular case—and I just heard about it; I was briefed on it before I came up here; and I may not state it all correctly—they leased it as they would potash. That is what they were trying to do. That was the intent. It was in Missouri, and you are correct. We have been receiving a percent royalty.

I will give you another example I am sure you have heard about. There will be issued shortly by our friends in the MMS a gold lease on the outer continental shelf in Alaska.

Senator **Bumpers**. You just anticipated my next question.

Mr. **Jamison**. I am ready for you.

And then that will be 5 percent.

Senator BUMPERS. And that will be leased under the Outer Continental Shelf Act.

Mr. JAMISON. Two different laws.

Senator BUMPERS. That is right.

Mr. JAMISON. And the third law is different.

Senator BUMPERS. What is the rationale in your opinion for charging somebody a 5 percent royalty on gold to be mined in water on an outer continental shelf simply because the OCS law requires it? You are doing that because the law requires it. But still we have this 1872 law that everybody is defending around here. And since 1947 on acquired lands and under the OCS law, which I think we passed since I have been here, 1976, you will not lease this unless somebody agrees to pay you a 5 percent royalty.

Now, I am asking you. Does this sound like sane government policy?

Mr. JAMISON. Sometimes Congress in my opinion does not make sane government policy.

But I want to add I think we are trying to mix apples and oranges, and we really are if you are looking at the OCS deal. I thought that through, and I worked on the House side. When we expanded to the 200 mile limit—I think most of you in this room remember—there was a concern like the nodules, the manganese nodules, how we would mine them and what they should be under. Basically all at this time on the ocean bottom, it's just that we were mining the surface of what is there.

It is also my understanding there are some ancient seabeds up there in Alaska. It is pretty easy to tell where the gold is going to be because it is the old seashores. And that is where they are going to do the dredging—same way with the manganese nodules. You can see what you are going after on the ocean floor. So, I think there is a legitimate split on those.

On acquired lands, let me go back and say there was some rationale for that because sometimes on acquired lands, we did not pick up the minerals at all. And sometimes I was informed that we may have picked up only portions of the mineral rights on some of the acquired lands because the previous owner, when we picked up the eastern states and Bankhead-Jones and all those others, may have sold off portions of those mineral rights. So, there are some reasons.

Senator BUMPERS. Mr. Jamison, we are not talking about how much the royalty is on acquired lands or how much the royalty is on OCS lands. The point is both of them require royalties.

Mr. JAMISON. I am not going to let you box me in to supporting you on a royalty on hardrock.

Senator BUMPERS. We trial lawyers have an old expression. If you have the law on your side, argue it to the court. If you have the facts on your side, argue it to the jury. And if you don't have either one, just run around and whoop and shout.

[Laughter.]

Senator BUMPERS. It seems to me that that is what I am experiencing here, a lot of people running around whooping and shouting.

[Laughter.]

Senator **Bumpers**. Mr. Jamison, thank you very much for your testimony. I, like Senator McClure, will have some additional questions in writing for you.

Thank you, Mr. Sant for being with us this afternoon.

Now, I am going to ask all the other witnesses to come up in a panel: Dr. Sandra Blackstone, formerly Deputy Director of BLM, now a consultant; Dr. Stephen Alfers, attorney, Davis, Graham & Stubbs of Denver; Mr. Stanley Dempsey, Chairman and CEO, Royal Gold, Inc. of Denver; Dr. W. Thomas Goerold, Chief Economist, Energy and Mineral Resources of the Wilderness Society; and Mr. Thomas Hendricks, President of the Hendricks Mining Company, Nederland, Colorado.

Dr. Blackstone, you are first on my list, so we will take you first.

STATEMENT OF DR. SANDRA L. BLACKSTONE, CONSULTANT, DENVER, CO

Dr. **Blackstone**. Thank you.

Mr. Chairman and members of the committee, I will summarize my written statement, which I ask to be included in the record.

My name is Sandy Blackstone from Denver, Colorado. I have worked on mining law issues for over 15 years as either an employee or consultant for mining companies, law firms and State and Federal Governments, as well as a professor at the University of Denver Law School where I taught mining law and other natural resource law courses.

While I am opposed to repeal or major revision of the 1872 Mining Law, especially changes affecting the prospector's right of self-initiation, I do think certain changes are appropriate. Those changes include a reasonable royalty on mineral production and, two, elimination of the surface patent provision.

Since I believe any change in the 1872 Mining Law is likely to include a royalty, I have tried to devise a workable approach to implementing a royalty system. This approach is summarized on page 4 of my written testimony.

Briefly, this approach would include a percentage royalty based on existing definitions by the IRS of gross income and taxable income for purposes of percentage depletion. Royalty would be established by statute as a fixed percentage, for example, 2 to 5 percent, of gross income, not to exceed a fixed percentage, for example, 5 to 10 percent, of taxable income, as defined by the IRS for percentage depletion purposes.

The advantages are also discussed in detail. I will just summarize them.

First, it uses an existing, well-understood definition for the two royalty bases. This avoids uncertainty, litigation and the delays the are associated with new definitions.

It has a self-policing or self-enforcing aspect that reduces the risk of creative accounting and promotes compliance.

It avoids the need for a massive new bureaucracy and minimizes the costs of collection and enforcement.

It values mineral production for royalty purposes at the most appropriate stage, where mining and mining related processing are complete.

It minimizes the adverse economic effects of royalties based only on gross value or gross proceeds. It also minimizes the administrative costs for mining operations with production from both Federal and non-Federal tracts.

In summary, the proposed approach satisfies the major criteria for an economically efficient royalty system, namely, simplicity and ease of administration for the royalty owner and in this case, the government or the public, as well as ease of compliance by the miner; the second criteria, certainty and predictability for the miner in their business operations; and third, it has minimum adverse economic effects on mineral production and exploration.

One question that might be asked is if this such a good idea, why has it not been used before. First, an agency like BLM or MMS is unlikely to voluntarily surrender of its turf to the IRS.

Secondly, for private leases, miners may be reluctant to have royalty value based on decisions by the IRS, which is not their favorite agency.

Perhaps the strongest argument for hardrock royalties is that all other landowners, including the States, collect royalties as part of the price for producing minerals. Opponents argue that the government should not collect royalties because it has the power to tax. This argument does not make any sense. Obviously, the government already collects both royalties and taxes for leasable minerals. This argument confuses the government's role as sovereign with its power to tax with its role as proprietor of the Federal lands with a right, like any other landowner, to exact a price for using those lands, including payment of royalties.

Opponents also argue that hardrock minerals are inherently different from most leasable minerals in that hardrock mineral deposits are more difficult to discover and develop, involve longer lead time, higher financial risk and larger investments than leasable minerals. While probably true, these differences argue against an all-competitive leasing system, not against royalties. It is perfectly possible to impose a royalty on production of locatable minerals without changing to a leasing system.

If this legislation requires a whole new definition of royalty value for hardrock minerals, the government will have to come up with definitions that cover every type of locatable mineral, every type of deposit, and every type of mining and processing technology. It is hard enough to draft a mineral royalty clause when you know a lot about the deposit and the mining and processing methods that are anticipated. It is nearly impossible when you are trying to provide for all contingencies.

It may be interesting to know why locatable minerals are the only Federal minerals not subject to a royalty. There has been some discussion about why this is and why Congress did it. The answer is really very simple. The 1872 Mining Law had its origins actually in the 1866 Lode Law which was enacted just after the Civil War or the War Between the States and shortly after the country acquired lands that more than doubled its size, stretching all the way to the west coast. Until gold was discovered in the California Territory, the only minerals of any significance in the United States were coal, which was essential to the railroads, and a little lead and zinc. Gold was discovered in California in 1849. Congress did not enact mining law until 1866. During those 17 years, which included the Civil War, miners established their own mining system as trespassers on public lands. By 1866, Congress simply did not think it had enough troops to enforce any different law, especially one with a royalty. So, it simply enacted into law what the miners were already doing on the public lands.

The 1920 Mineral Leasing Act, by contrast, was passed in 1920 after the United States had fought the great war in which oil powered ships and other vehicles played a vital role. Equally significant, we now had an income tax so Congress could afford to pay for the troops or bureaucrats necessary to enforce its ownership right to minerals on public lands. So, in 1920, Congress removed oil and gas, as well as other minerals, from those subject to the 1872 Mining Law and made them leasable subject to royalties.

Whether there should be a royalty for locatable minerals on public lands is simply a policy call, but if there is one, then it should be simple and fair and as efficient as possible. I think my approach will do this.

The next issue is the rate of the royalty. I think personally that 8 percent of gross value is way too high, but by using a reasonable gross value of royalty in combination with the percentage limitation on net or taxable income, you get the best of both worlds and a fair return to the public.

There has been considerable discussion today about how different or similar locatable minerals are compared to oil and gas, and the difference is often debated in terms of risk. This is often misunderstood as a difference in the risks or difficulties of finding oil and gas compared to finding minerals like gold. There is a difference, but the real difference is in the risk of having a profitable operation once you make a discovery. With oil and gas, once you drill a well or two and do geophysical work, you have a pretty good idea of the economics and you can expect to recover your capital investment over a period of years. With gold, you have much more capital at risk up front for a longer period of time, decades before you recover your capital investment, and you also have to take the risk of price fluctuations over that longer period of time. So, it is not the difficulty in discovering oil and gas or the geology of oil and gas compared to that of gold, it is the risk of having a profitable operation over the entire life of the mine, which is generally longer. That is one issue.

The second issue is that oil and gas—it should be obvious—is simply a more profitable commodity than gold has been historically, just like gold is more profitable but riskier than copper or lead or zinc. There are reasons why there are no major companies among the most profitable corporations in the United States while there are a number of oil companies like Exxon and others. It is interesting that Congress apparently recognized how much more profitable oil and gas are compared to other minerals when it repealed the percentage depletion allowance for all large oil and gas operators in 1975, but left all other minerals untouched.

That completes my summary and I look forward to answering questions.

[The prepared statement of Dr. Blackstone follows:]

Prepared Statement of Dr. Sandra L. Blackstone, Consultant, Denver, CO

EXECUTIVE SUMMARY OF BLACKSTONE'S ROYALTY PROPOSAL

Proposed Approach

Percentage royalty based on existing definitions by IRS of "gross income" and "taxable income" for purposes of percentage depletion.

Royalty would be established by statute as a fixed percentage (e.g., 2–5%) of gross income, not to exceed a fixed percentage (e.g., 5–10%) of taxable income.

Advantages

1. Uses existing, well-understood definitions for royalty base.
2. Self-policing aspect reduces risk of "creative accounting" and promotes compliance.
3. Avoids need for massive new bureaucracy and minimizes costs of collection and enforcement.
4. Values mineral production for royalty purposes at the most appropriate stage.
5. Minimizes the adverse economic effects of royalties based only on gross value or gross income.
6. Minimizes administrative costs for mining operations with production from federal and non-federal tracts.

In summary, the proposed approach satisfies the major criteria for an economically efficient royalty system, namely:

1. simplicity and ease of administration for the royalty owner (in this case the government or the "public"),
2. certainty and predictability for the miner, and
3. minimum adverse economic effects on mineral production and exploration.

1. Introduction

Mr. Chairman and members of the Committee, my name is Sandy Blackstone from Denver, Colorado. I have worked on mining issues for over fifteen years, as an employee or consultant for mining companies, law firms, and state and federal governments, as well as a professor at the University of Denver College of Law where I taught Mining Law and other natural resource law courses. I recently resigned from the full-time faculty to pursue other interests, but I continue to teach Mining Law as an adjunct.

In addition to my law degree, I hold a Ph.D. in Mineral Economics from the Colorado School of Mines. I served as Deputy Director for Energy and Mineral Resources of the Bureau of Land Management in Washington, D.C. from 1981 to 1983. My duties there included administration of the 1872 Mining Law. I serve on the Mineral and Energy Resources Board of the National Academy of Sciences, and have served on several study committees for the Academy. For further information, a copy of my resume is attached as Appendix A.*

While I am opposed to repeal or major revision of the 1872 Mining Law, especially changes affecting the prospector's "right of self-initiation," I do think certain changes are appropriate and probably overdue. Those changes include: (1) a reasonable royalty on production of locatable minerals from federal lands, from both unpatented and patented claims, and (2) elimination of the surface patent provision.[1]

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* Retained in subcommittee files.

[1] Of course, the surface patent would need to be replaced with provisions that guarantee reasonable and necessary use of the surface for mining purposes. These surface-use provisions would be similar to the rights claimants now have to mine on (valid) unpatented mining claims—a relatively common practice—but also would include provisions for reasonable and necessary use of other federal lands (i.e., those not overlying the mineral deposit). This would eliminate the need for patenting "millsites" for various mining uses as under the current law. If surface patent were eliminated, the $5.00 per acre and $2.50 per acre patent purchase price should be eliminated also. With the addition of a production royalty as proposed here, the government (like most other landowners) would primarily look to the royalty as compensation for minerals removed, rather than to some arbitrary fixed price (or, heaven forbid, attempt to actually value the mineral deposit—which has proved a nearly impossible task for the government to undertake). Thus the requirements for patenting the mineral deposit would remain essentially as they are under current law (including the stringent test for discovery), but with the substitution of the production royalty for the patent purchase price. Any additional fees for administrative costs of processing patents, or nominal surface use fees (which should be fixed by statute) should probably be kept low since the cost of developing the data, plans, etc., to meet the patent requirements are substantial.

These changes were also recommended by the Public Land Law Review Commission in 1970.

Since I believe any change in the 1872 Mining Law is likely to include a royalty provision,[2] I have tried to devise a workable approach to implementing a royalty system for federal minerals now subject to the 1872 Mining Law.[3] One of the major problems with existing federal royalties (for leasable minerals like coal and oil) is that the statutes use vague language such as 12½ percent of "value" or "gross value," leaving it up to the agency to define by regulation the "value" or "base" to which the percentage royalty is to be applied. Since the courts generally defer to the agency's interpretation of its statute, especially where Congress intended the agency to apply its expertise, it is very difficult to challenge definition of royalty value that the agency might dream up.[4] This lack of statutory definition has created uncertainty, litigation, and a massive, costly bureaucracy to administer the royalties for coal, oil, and gas.

2. Proposed Approach

Under my proposed approach, the statute would specify a percentage royalty based on "gross income" and "taxable income" as defined by the Internal Revenue Service (IRS) for purposes of percentage depletion.[5] Both of these definitions are relatively well-established by statute, regulations, and agency or court decisions. Both are already calculated by all mining operations for federal income tax purposes, and are subject to audit by the IRS.

Royalties for locatable federal minerals would be established by statute as a fixed percentage (e.g., 2–5 percent) of "gross income," not to exceed a fixed percentage (e.g., 5–10 percent) of "taxable income" (which is a type of "net" income). Although the royalty would be measured as a percentage of gross income, no royalty would be due for years in which the property produced no net or "taxable" income as defined for purposes of percentage depletion. Thus during the startup phase of a mining operation, no royalty would be due until the operation becomes profitable, in the sense of generating taxable income for purposes of depletion.

I realize that tax terms and definitions can be mind-boggling. So to simplify matters, I will refer to the IRS definitions of gross income and taxable income for purposes of percentage depletion as simply "gross income" and "taxable income." The two most important features of these definitions for royalty purposes are: (1) they are already well-established and well-understood by both government and the mining industry (at least understandable to the IRS and to mining company tax lawyers or accountants!); and, (2) they represent a measure of gross income and net income at the point where mining (and mining-related processing and transportation) have been completed in terms of producing a commercially marketable mineral product, which is the appropriate point for measuring "value" for royalty purposes. It is not really necessary to understand or agree with the concept of percentage depletion for tax purposes to understand the advantages of using these definitions as the base for a federal royalty. The tax concept of depletion, as well as the definitions of gross income and taxable income for purposes of percentage depletion, is explained in Appendix B of this statement.

3. Advantages of Proposed Approach

3.1. Uses existing, well-understood definitions for royalty base

First, and perhaps most importantly, this approach avoids the uncertainty and litigation associated with new statutory or regulatory definitions of "gross income" or "mining income" or "value" or "net profits" or "first arms-length sale" for federal royalty purposes. (This, of course, is not guaranteed to thrill the mining lawyers of the country!) The IRS definitions of gross income and taxable income are already specified in considerable detail in both the statute and the regulations. Previous litigation for tax purposes has already resolved many issues associated with new or different mining and processing technologies. Both gross income and taxable income are routinely calculated by mining companies in order to take advantage of the depletion allowance for tax purposes.

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[2] It is important to note at the outset that royalties are not inconsistent with retaining the location-patent system. While current federal mineral royalties only apply to leasable minerals, it is common practice to create a royalty apart from a lease. Such royalties are known as "independent royalties," and could be incorporated into the existing mining law with few other revisions.

[3] Federal minerals subject to the 1872 Mining Law are referred to as "locatable" minerals. The 1872 Mining Law only applies to federal "public domain" lands.

[4] See, e.g., *U.S.* v. *Southwest Potash Corp.*, 353 F.2d 113 (10th Cir. 1965).

[5] I.R.C., Sec. 613, Treas. Reg. Sec. 1.613-5(a).

In fact, the gross income definition has been suggested previously as an appropriate base for mineral royalties. The coal and utility industries proposed this definition of gross income as the initial base for federal coal royalties.[6] A prominent mining lawyer has suggested using this gross income definition as the royalty base for private mining leases where the parties are unsure of the mining method that will be used.[7] At least one state has adopted the gross income definition as the basis for its mineral severance tax.[8]

My approach differs from these earlier proposals in that the royalty would be tied to both gross income and taxable income, a royalty of four percent of gross income, not to exceed ten percent of taxable income. This combined approach has several important advantages over using just gross income or just taxable income as the royalty base, as discussed below.

3.2. Self-policing aspect reduces risk of "creative accounting" and promotes compliance

Second, this approach has a self-policing aspect, in that the rational miner would want to maximize gross income for purposes of percentage depletion (thereby reducing federal taxes), but would want to minimize that same gross income amount for federal royalty purposes. The self-policing aspect, or offsetting effect, also applies to taxable income (but when used to define a cap on the royalty amount) because the miner must have taxable income in order to take advantage of percentage depletion.) This self-enforcing aspect is one reason why the royalty should be measured initially as a percentage of gross income, rather than as a percentage of taxable income (or any other definition of "net" income) since the tendency would be to minimize taxable income for purposes of reducing both taxes and royalties.

3.3 Avoids need for massive new bureaucracy and minimizes costs of collection and enforcement

Third, this approach avoids the need for a whole new bureaucracy to administer royalties for locatable minerals. While some additional personnel would be needed to coordinate with the IRS, etc., there would be no need for additional accounting and audit staff. (Note, I am not proposing that the IRS keep federal royalties or dump them into the general fund. Federal royalty income would be deposited and allocated as it is under current law or allocated among the federal and state governments in any manner Congress chooses.)

3.4. Values mineral production for royalty purposes at the most appropriate stage

Fourth, this approach measures royalty value, or the value of mineral production, at the point where "mining" is considered complete, but before the value added by additional treatment, processing, or beneficiation. This has traditionally been the valuation point for mineral royalties, going back to the crown's (i.e., sovereign's) "royal share" of production set aside at the mine mouth.

In economic terms, this valuation point promotes efficiency and equity since it does not penalize ores that many require costly further processing beyond the "mining" stage (as defined by the IRS for depletion). It is similar to the "net smelter returns" royalty base which has historically been used in private mineral transactions, but avoids the incredible complexities associated with defining a net-smelter-returns value for all types of minerals and for evolving mining and processing technologies.

3.5. Minimizes the adverse economic effects of royalties based only on gross value or gross income

Fifth, by capping the royalty at a fixed percentage of taxable income (as defined), this approach minimizes most of the adverse economic effects of gross royalties (i.e., in raising the cut-off grade for ore, reducing economically recoverable reserves, shortening mine life, etc.).

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[6] Coal/Electric Utility Royalty Valuation Proposal, 52 Fed.Reg. 29868 (August 12, 1987).

[7] Parcel, *Selected Royalty Problems of Standard Mining Lease Forms*, 19 Rocky Mt. Min. L. Inst. 367, 384 (1974).

[8] Kentucky Severance Tax, Ky. Rev. Stat. Ann. Secs. 143.0100 to 143.100 (1982), Secs. 143A.010 to 143A.991 (1986 Supp.). Severance imposed on coal and other minerals (except oil) at the rate of 4.5% of gross value, defined as gross income from property as defined in I.R.C. Sec. 613(c) and regulations in effect on December 31, 1977, with the exception that all transportation expenses are excluded.

3.6. Minimizes administrative costs for mining operations with production from federal and non-federal tracts

Sixth, this approach minimizes the difficulties associated with allocation of production from mines that include both federal and nonfederal parcels or tracts. Taxpayers are required by the IRS to calculate depletion for each separate "property" interest that comprises an operating mine. "Property," for purposes of computing the depletion allowance, is defined as each separate interest owned by the taxpayer in each mineral deposit in each separate tract or parcel of land. While certain property interests may be combined at the election of the taxpayer, the taxpayer must maintain separate accounts for separate nonfederal properties that may be subject to different royalties, or use some acceptable allocation scheme. Royalty income is also subject to depletion and royalty payments are deductible by the operator for purposes of calculating gross income for depletion. In other words, the problems associated with commingling of ores from tracts with different royalty owners and different royalty rates (or definitions) would be no different than they are now. Most mining operations, even on federal lands, involve leases of tracts or claims with several different royalty owners.

3.7. Criteria for Economically Efficient Royalty System

In summary, the proposed approach satisfies the major criteria for an economically efficient royalty system, namely:

1. simplicity and ease of administration for the royalty owner (in this case the government or the "public"),
2. certainty and predictability for the miner, and
3. minimum adverse economic effects on mineral production and exploration.

4. Proposed Language for Legislation

ROYALTY—Production of locatable minerals from mining claims or patents after __________[date of enactment] shall be subject to reservation of royalty to the United States of ______["X"] percent gross income, not to exceed ______[2 x "X"] percent of taxable income. [If desired, different rates may be specified for certain minerals, with a catch-all rate for "all other minerals subject to this Act."] For purposes of this royalty section only, "gross income" shall be the same as "gross income from the property" as defined in section 613(c)(1) of the Internal Revenue Code, and regulations promulgated by the Treasury Department pursuant to section 613(c)(1) of the Internal Revenue Code; "taxable income" shall be the same as "taxable income from the property (computed without allowance for depletion)" in section 613 of the Internal Revenue Code for purposes of computing percentage depletion, and regulations promulgated by the Treasury Department pursuant to sections 613 of the Internal Revenue Code. Any amendments or revisions of sections 613 or 613(c)(1) of the Internal Revenue Code, or of regulations promulgated by the Treasury Department pursuant to section 613 or 613(c)(1) of the Internal Revenue Code, shall be deemed applicable to the definitions of "gross income" and "taxable income" as used in this section of this Act.

5. Types of Mineral Royalties

Unlike oil and gas, most hardrock minerals are not extracted from the ground in a relatively pure state but require extensive processing to produce a salable product. Ore from a mine is usually not economical to transport very far and must be concentrated or further processed before sale. The extent and type of processing required may vary substantially depending on the particular mineral, the geologic and metallurgical characteristics of the particular deposit, and many other factors such as location, transportation alternatives, etc.

As a result, determining royalty value or base is more difficult than it is for coal or oil. Also, unlike oil and gas, hardrock mineral royalty provisions in private transactions are highly variable and non-standardized. In fact, terms like "gross value," "net smelter returns" or "net profits" have little meaning without reference to specific definitions.

The chart at the end of this statement provides a conceptual framework that I use to explain different types, or categories, of royalties. Keep in mind, however, that these are generic categories—there are no "standard" definitions for each type of royalty.

The chart shows the point of royalty valuation for the five principal types of royalties, based on the value of the mineral product at different stages of production and processing: (1) the net profits royalty, (2) the mine-mouth royalty, (3) the net smelter returns royalty, (4) the net refinery returns royalty, and (5) the gross value royalty. These five types reflect increasing value added as a result of mining milling, smelting, refining, and transportation. The small triangle at the top represents the value of the mineral in the ground. Each trapezoid, if you will, below that triangle represents the value added by mining, milling, etc. The entire large triangle represents the ultimate gross value or market value of the mineral after mining, milling and all other processing.[9]

Of course it is also possible to design royalties based on a combination of several of these royalty bases, or royalty provisions with sliding scale or variable rates tied to commodity prices or production levels. The important point is that there is no such thing as a standard royalty clause for any of these types of royalty bases, much less a standard royalty rate (i. e., percentage).

6. Problems with Royalties for Hardrock Minerals

It's worth discussing briefly the kinds of issues that have been part of the royalty debate for locatable minerals over the years. Probably the strongest argument for hardrock royalties is that all other landowners, including the states, collect royalties as part of the price for producing minerals from their land. Opponents argue that the government should not collect royalties because it has the power to tax. This argument has never made any sense to me. Obviously, the government collects both royalties and taxes for leasable minerals on federal lands. The argument seems to confuse the government's role as sovereign (i.e.. its power to tax) with its role as proprietor of the federal lands (i.e.. its power to establish terms and conditions, including payment of royalties, for the use of or acquisition of rights to federal lands) Historically, in fact, the sovereign right to royalty (primarily on gold and silver) applied to minerals in private lands, not the lands owned by the sovereign.

Opponents also argue that hardrock minerals are inherently different from most leasable minerals, i.e., that hardrock mineral deposits are more difficult to discover and develop, involve higher financial risk and larger investments than leasable minerals such as coal or oil and gas. Most of these differences support arguments against an all-competitive leasing system, however, not against royalties. It is perfectly possible to impose a royalty on production of locatable minerals without changing to a leasing system.

The recent history of federal royalty administration for coal, oil, and gas is probably one of the best arguments against federal royalties for locatable minerals, or at least against administration of such royalties by the Department of the Interior. As fond as I am of the Interior Department, there are simply some things it does not do well!

If this legislation requires a new definition of royalty "value" for hardrock minerals, the government will have to come up with definitions that will cover every type of locatable mineral, every type of deposit, and every type of mining and processing technology. It's hard enough to draft a mineral royalty clause when you know a lot about the deposit and the mining and processing methods that are anticipated. It's much more difficult when you are trying to provide for all possible variations and contingencies.

6.1. Valuation Problems

Even when private royalty clauses contain extensive definitions of value for royalty purposes, problems of product valuation may arise. For example, problems with interpretation of mine mouth or net smelter returns royalties may develop when the intermediate product (ore or concentrate) is not sold or produced by the miner as contemplated by the royalty provision. For example, the miner may process the mineral in its own facility rather than sell ore or concentrate to a third party. Or a change in technology (e.g. heap leaching or solution mining) or the extraction method may mean that the intermediate product is never produced.

Problems of interpretation for intermediate royalties typically arise in two situations: (1) where the intermediate product is not sold as contemplated by the royalty provision, e.g., the miner processes it further in the miner's own mill, or (2) where the intermediate product is never produced as contemplated by the royalty provision due to an unanticipated change in technology or miscalculation by the parties as to the nature of the mineral deposit.[10]

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[9] Note that in arriving at royalty value at a particular stage, processing costs are not necessarily equivalent to the value added by processing, since one must also consider profit on the various processing operations.

[10] See *ALM 2d*, Sec. 85.03[2][b][iii]. These problems can be avoided by providing for different royalty rates depending upon whether the minerals are sold in crude form, as concentrates, or as refined products. See Dufford, *Royalty Provision of Hard Mineral Leases*, 10 Rocky Mountain Mineral Law Institute, 401, 415-21 (1965). However, this approach makes the royalty provision much more complicated and it may be difficult to determine the appropriate relationship between the royalty rates for each type of product.

6.2. Problems with "Gross" Royalties

The problem with royalties based on various definitions of gross value or gross proceeds is that such royalties have the economic effect of reducing economically recoverable reserves by raising the "cut-off grade," or turning ore into waste. This problem becomes more acute the more "value added" processing is included in the royalty base. For example, a net profits royalty has the least adverse effect on reserves, while a "gross value" royalty as shown in the chart has the most adverse effect.

6.3. Problems with "Net" Royalties

Royalties based on some definition of net profits or net proceeds have the least economic effect on reserves and profitability, but are the most difficult to define and administer. Most private landowners will not accept a net profits royalty because of the concern that "creative accounting may deprive them of their fair share even when the mining operation is very profitable. Net profits royalties in private leases have resulted in complex litigation over the meaning of "profits," particularly as forward sales (hedging transactions) and gold loans become more common.[11]

6.4. Problems with "Net Smelter Returns" Royalties

The basic problem with a net smelter returns royalty is that it is outdated (e.g., difficult to apply to changing technology such as heap leaching operations), and very complex to define prospectively when little is known about the mineral deposit or mining and processing methods that will be used. However, the mining industry is "comfortable" with the terminology and it does represent the traditional point for valuation of mineral production for royalty purposes.

6.5. The Total Royalty Burden Problem, or "What should the royalty rate be?

The total royalty burden problem refers to the fact that prospectors, not large mining companies, generally discover mineral deposits on federal lands, and are compensated by reserving a production royalty when they lease their claims to mining companies for development. While they may also receive other payments, the royalty is the primary way of sharing in potential upside value of prospect.

If the government imposes a high royalty that attempts to capture all the potential royalty value from federal mineral production, there will be nothing left for the "middle man." Put another way, if the total royalty burden on a particular deposit becomes too high due to the combination of the federal royalty and the prospectors (or intermediary's) royalty, the deposit will be uneconomic to mine. Hence, no one will get any royalty and there will be much less production of locatable minerals from federal lands.

The further problem, however, is that the total royalty burden that could be imposed without making the deposit uneconomic varies depending on the particular characteristics of each deposit (not to mention the uncertainty and variability of mineral prices) and cannot be determined with any certainty up front.

Since this is no different than the situation for development of private minerals, the simple solution would be to establish the federal royalty at the same rate as that for private lands. Unfortunately, private royalty rate for hardrock minerals are not standard, but are negotiated on the basis of what is known about the particular deposit in terms of reserves, production costs, and expected profitability. The government, as landowner, is institutionally incapable of valuing individual mineral deposits and negotiating royalty rates for each one. (Consider the experience with valuation for coal exchanges, state in-lieu selections, etc.).

The only solution is to select a reasonable royalty rate that is perceived as fair to both the government and the miner (both prospector and operator). It is very difficult to get information on private royalty rates, but it appears that a total royalty burden of 5 to 10 percent of value at the "mine mouth" would be reasonable, at least for gold. Thus if the federal royalty were in the range of 2 to 5 percent of gross income as in my proposal, that would leave 3 to 5 percent for the prospectors and other intermediaries as an incentive to discover valuable minerals on federal lands.[12]

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[11] See, e.g., *Candeleria Industries, Inc.* v. *Occidental Petroleum Corp.* 662 F. Supp 1002 (D.Nev. 1987), *Argentum Consolidated Mines, Inc.* v. *Occidental Minerals Corp.*, (No. CV86-4797-AWT, C.C.Ca. 1988).

[12] The 1976 "industry" bill included a royalty of 2% of mining income (essentially similar to gross income from mining for purpose of depletion), not to exceed 5% of "net income" from mining. While the rates are illustrative, the definitional problems would have been the same as any other new royalty base.

Obviously, selecting the appropriate royalty rate is not easy, because there is no secret formula. Whatever the rate for a particular mineral, it will be attacked as both a give-away and as the death of mining. But of course, making difficult decisions is what we pay Congress to do.

6.6. Different Royalty Rates for Different Minerals

It may make sense to use different royalty rates for different minerals, since this probably reflects the practice in private mineral transactions. But for ease of administration, there should be relatively few different categories of rates. As a starting point, I would suggest looking at the different rates for percentage depletion as an indication of the types of minerals that can be grouped together. There is no question that most economic gold deposits could probably bear a higher royalty than most lead-zinc deposits, for example. However, it may be preferable to have a reasonably low rate for all minerals, rather than attempt to classify them according to potential for profitability.

The most important point is that the rate must be fixed by statute, rather than worded as a "not less than" rate, so that the agency doesn't have to go through this process all over again and create even more uncertainty for the mining industry. This is a decision for Congress to make, not one to duck by passing it on to the agency.

7. Problems with Surface Rentals

I have no strong objections to the fixed surface rental fees such as $5.00 per acre. This is similar to what is used in private mineral transactions. However, viewing surface rentals as compensation for the fair rental value of the surface (or the "opportunity costs" associated with using the land for mining rather than some other use such as wildlife habitat or recreation) would be a mistake. You can imagine the problems an agency would have in determining the level of rentals for each different mining site!

As a rule, economic mineral deposits are so valuable that the other uses will almost always lose out in any opportunity cost comparison. These trade-offs must be made in the land use planning process, and in the process of determining mitigating measures for operating and reclamation plans. For example, wilderness is a go/no go types of decision for planning purposes—it is simply not compatible with uses such as mining and someone has to make that policy decision. But if mining can be done in an environmentally "acceptable manner" (which is a constantly changing standard, as public perceptions evolve), then mining an economic deposit will always be the "highest and best use" of the land in economic terms (including, by definition, social costs).

The most effective way for the government to be compensated for the mining use of the land is by royalties based on actual production. This is the way landowners have traditionally been compensated for the use of their land for the extraction of minerals. While other types of payments may be required under private mineral transactions, the bulk of the return to the landowner is expected to come in the form of production royalties.

The use of royalties, combined with elimination of surface patent, also avoids any debate over how much patent prices should be increased to reflect the fair market value of the land and minerals. Production royalties would apply both before and after patent, and would in effect represent a determination by Congress that such royalty is the fair market price to be paid for the right to use the land for mining.

APPENDIX B

"GROSS INCOME" AND "TAXABLE INCOME" FOR PURPOSES OF PERCENTAGE DEPLETION

The Depletion Conceit

The mineral depletion allowance is a federal tax code provision that is conceptually similar to the depreciation deduction allowed for capital assets such a buildings, equipment, machinery, etc., that must eventually be replaced. The production of minerals from a mine or reservoir diminishes the mineral deposit until economically recoverable reserves are eventually exhausted. This is referred to as "physical depletion." At the same time, the asset value of the mineral deposit is also decreasing, resulting in "economic depletion." For federal income tax purposes the depletion allowance is a method of capital recovery for a "wasting asset," whose value is undergoing physical and economic depletion as a result of mineral production. In other words, the depletion allowance allows tax-free recovery of the investment in the mineral deposit. (The percentage depletion alternative discussed below allows the producer to potentially recover more than its original investment in a particular property, as an incentive for exploration and development of new deposits—recognizing that the cost of finding the next deposit may be much higher and will also involve costs and risks of unsuccessful exploration efforts. Unlike other types of capital assets, mineral deposits cannot be ordered up at a known price from your local supplier or builder!)

The Internal Revenue Code provides two methods for computing the depletion allowance—cost depletion and percentage depletion. The taxpayer must compute the depletion allowance by both methods and must use the larger of the two amounts. Although the royalty base proposed here would be tied to the percentage depletion method, it is useful to explain both types of depletion methods.

Cost Depletion

Cost depletion allows recovery of the taxpayer's investment in a mineral property based on the ratio of current unit sales of mineral product during the tax year to the total anticipated unit sales of mineral product. For example, assume the taxpayer's investment, or basis, in the mineral property is $1,000,000; the number of units produced and sold during the tax year is 10,000 tons; and the total anticipated sales are 100,000 tons. The cost depletion allowance, or deduction, for that year would be $1,000,000 X (10,000 tons/100,000 tons), or $100,000.

Percentage Depletion

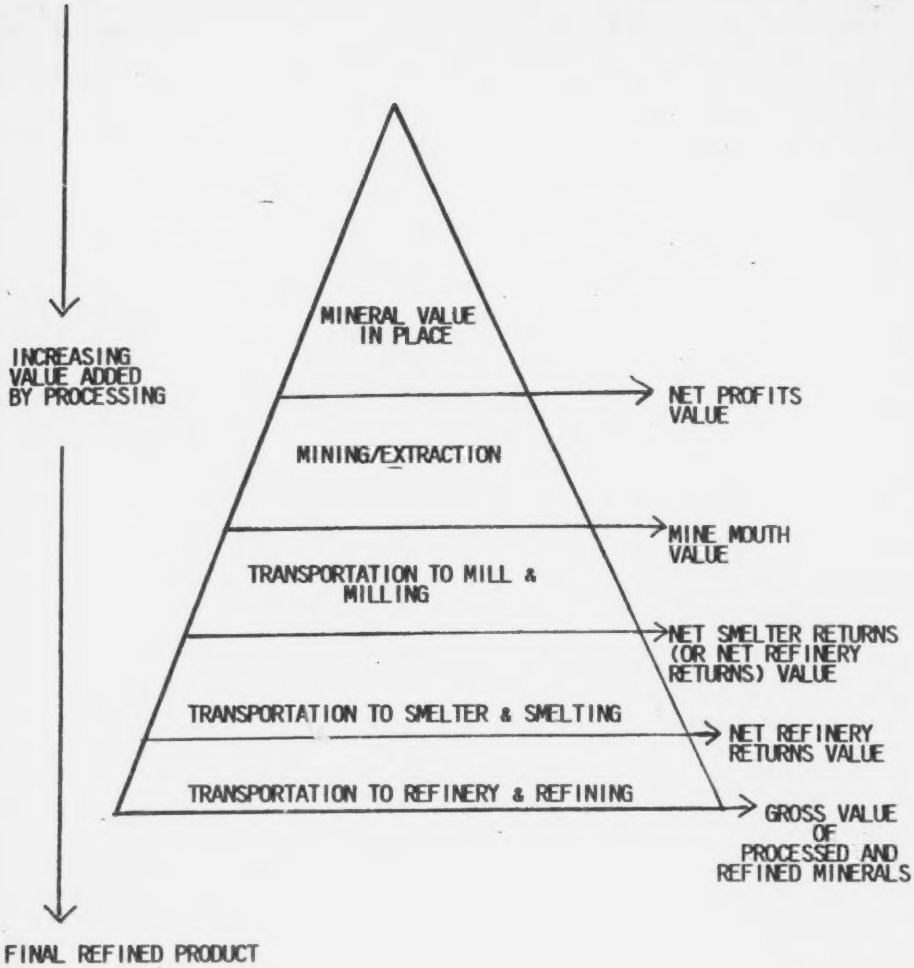
Percentage depletion is a specified percentage of gross income from the property, which may not exceed 50 percent of taxable income from the property. In simple terms, the percentage depletion allowance exempts a fixed percentage of gross income, or value of mineral production, from federal income taxation (at least up to the limit of 50% of taxable income). Percentage depletion rates for hardrock minerals range from 22% for molybdenum and certain other minerals, 15% for gold, silver, copper and iron ore, 14% for most other metals, to 5% for gravel. (The rate for "all other minerals" not specified in the statute is 14%). For example, assuming a gold mining property with annual gross income of $1,000,000, and taxable income of $350,000, the 15% percentage depletion allowance would be $150,000, which in this case does not exceed 50% of taxable income (.5 x $350,000 = $175,000). Although cost depletion will be reduced to zero after full recovery of the taxpayer's basis, or investment in the property, the taxpayer may continue to deduct percentage depletion based on its income from mineral production.

"Gross Income"

"Gross income" from the property for purposes of percentage depletion is conceptually similar to the value used for net smelter returns royalties. It is the income derived from the sale of ores or minerals after extraction and after treatment by processes considered "mining process." Both the statute and the IRS regulations define mining processes, as well as processes that are not considered mining. For metallic minerals, mining processes include crushing, grinding and beneficiation by concentration (gravity, flotation, amalgamation, electrostatic, or magnetic), cyanidation, leaching, crystallization, or precipitation (or substantially equivalent processes) but do not include electrolytic deposition, roasting, thermal or electric smelting or refining. In essence, this definition of "gross income" is designed to include all "value added" by extraction or mining, as well as any "mining processes" necessary to produce a commercially marketable mineral product.

"Taxable Income"

"Taxable income" for percentage depletion purposes is similar to net income (although "net income" can be defined in an infinite variety of ways, and there is no standard definition of net income or net profits for tax or royalty purposes). Taxable income is gross income from the property less allowable deductions (other than depletion) for mining processes, including mining transportation, attributable to the property. These allowable deductions include operating expenses, administrative and financial overhead, depreciation, and exploration and development expenditures.


INCREASING
VALUE ADDED
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MINERAL VALUE
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RETURNS VALUE
TRANSPORTATION TO REFINERY & REFINING
GROSS VALUE
OF
PROCESSED AND
REFINED MINERALS

Senator **Bumpers**. Thank you very much, Dr. Blackstone. Mr. Alfers.

STATEMENT OF STEPHEN D. ALFERS, ATTORNEY, DAVIS, GRAHAM & STUBBS, DENVER, CO

Mr. **Alfers**. Thank you, Senator. I am Stephen Alfers of the Denver office of Davis, Graham & Stubbs. I am a lawyer with 14 years experience in the mining industry representing both owners and developers of mineral lands in the United States. I am appearing here today at the invitation of Senator Bingaman. And in Senator Bingaman's August 9 letter, he posed a number of questions, and I have submitted a written statement responding to those questions. I ask that my written statement be included as part of the record.

Senator **Bumpers**. Without objection, it will be.

Mr. **Alfers**. I have had a chance to look at Dr. Blackstone's statement, and I find it quite interesting. I have not had a chance to study it, but I must say it is the most promising proposal I have seen so far.

I am puzzled how her proposal might work in a typical case of a complex land position of unpatented claims and fee lands in a more typical mining operation or where, also in a typical operation, ores will be commingled between Federal and non-Federal ores. I trust these are questions that could be resolved.

Moreover, as I understand it, taxable income, as laid out in Dr. Blackstone's proposal, probably does not exclude exploration costs for non-producing properties, and it seems to me that it really should.

But mostly Dr. Blackstone's analysis assumes a fact not in evidence and that is that hardrock mining can afford any royalty at all. The fact is far from clear. And in preparing our statement for the hearing today, we enlisted the aid of Coopers & Lybrand, an international firm of certified public accountants, to analyze some financial statements of some mining companies. We felt it necessary just to respond to the questions that Senator Bingaman had posed.

So, we approached five gold mining companies, as it turned out. They are all publicly traded or divisions of publicly traded companies. The companies ranged in size from the junior exploration company and one junior mining company to three major gold producers. We selected companies well-known in the industry. We chose typical companies with land positions that included mining claims on Federal lands and fee lands and exploration projects, producing mines and advanced stage development projects approaching feasibility determination. Four of the five companies we approached responded with data. One company only had manual land records and could not provide information in a timely manner about the age of the claims we felt necessary in order to try to apply S. 1126. So, we have not pursued the information from the company any further.

We have completed the analysis of two of the companies, and we have attached to our statement some proforma presentations. We completed still another analysis this morning, and we will complete the fourth in just a few weeks. When those studies are complete, we would like to review them with the company's management and then supplement our statement with the consent of the committee.

So, today we have company A and company C to look at, as we have analyzed in our written statement. Company A is a company many of you would recognize as a junior mining company with modest landholdings and modest production. It is publicly held. It is typical of many of the domestic hardrock mining companies. Company A has operated at a relatively small profit or a small loss over the past few years, but has managed to maintain a positive cash flow to sustain its operations and its exploration. Company A holds some 5,000 unpatented mining claims throughout the western states. It operates two active mines with a third in development. Company A's sales of gold were approximately $13 million in fiscal 1990, and because it operates on such a small margin, just about all of that $13 million were spent in the local economies, mainly in Nevada.

Company C, on the other hand, is a large publicly held company I am sure you would recognize. It is one of the most profitable mining companies in the United States. Company C has operated at a net income of over $30 million for each of the past 3 years and has a positive cash flow of over $49 million for these past 3 years. Company C holds more than 6,000 unpatented mining claims throughout the western states.

Ours has been a limited study of just a few gold companies. The results are revealing, but they are not comprehensive. But what the study does reveal are some tentative conclusions, and I would like to repeat them there.

Under S. 1126, small miners really have no future in the U.S. mining industry.

Second, few junior mining companies can survive with the burdens of S. 1126, and that will leave the industry with no component ready to take on these high risk, early stage exploration projects, advance them a bit to the stage where the majors can then become interested.

Third, many mines will close almost entirely in the western states and with the attendant losses of jobs and tax revenues to State, local and to Federal treasuries.

Fourth, the rate of construction of new mines will decline.

Fifth, the level of exploration activity and discovery of new deposits will decline.

Finally, private landowners will enjoy now a considerable advantage of mining claimants and mining activity will tend to concentrate in private lands and in other countries.

These are tentative conclusions. They are based on this analysis of actual data of a couple of mining companies. I have attached a fairly weighty set of schedules to my written statement, and if it would please the committee, I would like to take just a minute to call to your attention a number of the things in those numbers that allowed us to reach these conclusions.

I want to invite your attention to the statement that I provided to you. It is what we have called Schedule 1 of the company A exhibit.

Senator Bumpers. Mr. Alfers, tell me where is that in your statement because I cannot see that from here.

Mr. Alfers. Schedule 1 should be page A–2.

Senator Bumpers. A–2?

Mr. Alfers. Yes.

Senator Bumpers. Just a moment. Okay.

Mr. Alfers. This is a financial statement. And the way we prepared this statement was simply acquired from company A its own fiscal 1990 financial statements, and then we put to the company a number of questions about the nature of its operations and the kind of land position that it held, the sources of its production, so that we could then apply S. 1126 to this company's financial. And we achieved some of these results.

We applied two cases of the application of S. 1126. If you read across the top there in the shaded part on page A–2, we have a couple of columns. We wanted to look at the financial under the Mining Law of 1872, and then we wanted to look at the financial under what we have called case 1, and that is the case in the event S. 1126 were passed today, what would the financial statements of the company look like tomorrow, and that is case 1. We tried to show some percentage changes in the next column, and then we have looked at case 2.

There is something misleading about just looking at this snapshot of the impact on a financial statement the day after we passed 1126. And what is misleading about it is that it recognizes that there are a lot of mining claims and a lot of mining companies out there that already have planned positions that are held that will not yet be converted over to the mining claims under 1126. There is production coming off of fee lands, production coming off previously patented mining claims that would not be reflected for many years in an application of 1126. So, what we tried to do is to add another assumption, and that is assume that all of the production and all of the exploration that had been undertaken by this company had been done on mining claims pursuant to 1126, and we get somewhat different results there.

But now back to company A. Company A is a fairly typical junior company. It has some operating mines. It hires people. It has headquarters in a major western city and it has operations in a couple of western States.

If I can just call your attention to the line item there, the Federal royalties. There we just applied 8 percent of the gross as the way I interpret the royalty in S. 1126. And there are a couple of things of some interest there.

You will notice that this $661,000 in Federal royalties there is 150 percent of the level of royalties to private royalty owners. Now, these private royalty owners are there because, as I am sure the Senator knows, as land position is put together, projects often start as just public land about which little is known. It may be a mining claim or it may be piece of someone's ranch. It is generally used for values other than mining, and then the holder of that mining claim or that piece of land might advance it, prospect it, and spend a whole lot of money on it, and eventually perhaps make a discovery, and the convey or assign that land position to another company who would do the same, and a royalty might be reserved there.

So, while I have not examined all the underlying royalties that company A pays, these are what I would expect to find to justify those private royalties. And it is interesting to me that the Federal royalty here is 150 percent of that string of royalties on the same land position.

I also want to call the committee's attention to the diligence requirements here. It is interesting to observe here that almost $5.8 million is required in applying the diligence and fee provisions of S. 1126 to this operation, and those figures should be compared to the exploration expended that year by company A. This is the real burden on the small exploration company, on the small mining company, and there are a couple of reasons for that.

It isn't that the small companies are simply holding big bunches of mining claims and not performing assessment work or not performing the work on them. We will see, as we make some comparisons to company C, a major, company C is not immediately impacted by the diligence requirements because it already spends a lot of money—enough to cover the diligence requirements on its land positions. The differences are first that company C is going to have a lot of cash flow, as you can see, for a while in order to fund that kind of exploration, where company A does not. But the better explanation is that the land held by these junior exploration mining companies are not advanced stage projects. They simply cannot absorb all that exploration simply because we have legislation that now requires it as a matter of diligence. One cannot drill a hole until one first spends time on geophysical work and sampling and analysis in order to find the site, and then to impose the drilling requirement that would consume more of these dollars here.

We can see what this does to the bottom line, and it is fairly dramatic. Just in case of one here, quite a bit more dramatic than the royalty impact, at least if you look to the future and see what operations might in the future be like should we all be operating under S. 1126. The bottom line figure here is that company A sustained a modest loss—maybe not so modest a loss, but nearly $4 million. It probably accounted for some development work that it is undertaking to bring the mine into production in the next couple of years. But after applying S. 1126, those losses mount from $4 million to more than $10 million.

I have another schedule here. This is schedule 4, and that would be on A-5 of the materials. This is a key document here. This is an analysis of the cash flow. It also began from just acquiring from company A its cash flow statement as part of its financial and then applied again S. 1126 to that.

Once again, the same line items become material there, the Federal royalties paid and the holding costs there that are paid. This is the key observation here. While company A was even operating at a loss in fiscal year 1990 while it was pursuing a development of an advanced stage project in hopes of bringing it on to production and running a loss, it still had a positive cash flow. It could still meet its payroll and could pay its bills. When you apply S. 1126, it cannot. It runs a negative cash flow of nearly $8 million, and that is the end of companies like this. It can sustain a loss for a while, and many companies. Companies cannot sustain a negative cash flow, and certainly not of this magnitude.

I want to invite your attention to schedule 7, and that would be on page A-8. What I have tried to do here is some comparisons of cost per ounce. It become something of a puzzle to me as I was trying to grapple with the questions that Senator Bingaman had posed because I too had read the newspapers and watched the media reports and the stories of cash cost per ounce and how low they might be and what profits I expected to find here in this gold mining industry. What I learned surprised me.

What I learned here was that if we just look at company A, it supports under the general Mining Law of 1872 a cash cost per ounce of $267. We need to know what cash cost is, and cash cost is little more than just the operating cost of producing an ounce of gold. It does not include capital cost or depreciation or interest or overhead or any of the rest of the things that it takes to run a mining operation. But this is the reported figure that one notices in the media, cash cost per ounce. And they generally claim bragging rights—the mining companies do—to who can have the lowest cash cost per ounce. Well, cash cost here is $267 under the 1872 law.

I began, though, to ask to see if I couldn't get the true cost per ounce because it is cost per ounce in the total sense or in the economic sense that we really need to be concerned with here. So, we inquired of the company to learn about its capital costs. And so, we can report a total cost which would include the capital costs of $364.

There is one other figure out there because that still is not total cost. These are the costs that the industry tends to report in its industry publications, cash cost, adjusted operating cost. Total cost is depreciation interest, overhead, as well as the operating costs. But that does not include the cost of exploration. These are all readily available through the financial statements, and we found them here. But in order to get to the true cost of producing that ounce of gold, it is important to add in the exploration costs or the finding costs.

This company spends very little in fiscal year 1990 probably because it could not afford to spend much more, only $11 for its finding costs for the ounces that year, but that brings their total cost per ounce for fiscal year 1990 of $375 during that period of time and today's gold price is just about $380. That leaves them a margin of $5 per ounce, not a lot of margin in the glamour commodity of gold here.

Now I want to call the attention of the committee to the impact of S. 1126, and that is in that first shaded column in case 1. The cash cost per ounce jumped immediately to $267 to $287 per ounce. That is because of the 8 percent royalty, or 8 percent of $280 is $30, a lot more than the $20. That is because much of the production is coming off of fee lands and would not be impacted immediately by S. 1126. It would in the future, however.

But when the diligence provisions, the exploration costs, are increased under S. 1126, the total cost per ounce for fiscal year 1990 under this proforma would be $569, well in excess of the market price of the gold. So, what we are saying here is that there is not a lot of margin for this kind of company, certainly not at these prices.

I also want to add that this is a company that is pretty typical, maybe better than most. It is one that we can read about in the papers and is thought to have a good future.

Senator **Bumpers**. Mr. Alfers, I do not want to deprive you of the time. You have obviously gone to a great deal of trouble. All of those are also attached to your testimony. If you could expedite this, it would help.

Mr. **Alfers**. All right.

We have done the same kind of analysis for company C. And I want to just look at this and one last summary that I had done.

Senator **Bumpers**. Where is that one in your testimony?

Mr. **Alfers**. This one would be C-2. I do want to take some time with this one because it points up some distinctions between a major operating company and the smaller, junior mining company.

First the royalties. The Federal royalty here is nearly $9 million, which is about 20 percent of the profit margin. An 8 percent royalty for this particularly company is equivalent to 20 percent of its profits. I think that is pretty high.

Then the minimum diligence requirements that you can see here didn't generate a tremendous impact because we already had $12 million being expended by this company. This is a company that has a number of highly productive operations, big, high-grade ore bodies which justify a whole lot of exploration around it, and they can absorb these kinds of dollars, as well as the minimum diligence requirements under S. 1126. But even in a company of this size, which some would say is the most profitable gold mining company in the United States, we are looking at an 18 percent reduction in earnings in its bottom line. It's a publicly held company, and the owners of the stock of that company can look to see some impact in stock prices.

Cash flow. If I can call your attention to schedule C-5, I just want to show that once again cash flow is important and the impact of S. 1126 on this company which results in a 20, maybe 21, percent reduction in cash flow. This is important for a publicly held company because this company would fund its exploration and its development out of its cash flow or out of public offerings of its stock. When the stock takes a serious dip, as it would, and when cash flow takes a serious dip, as it will, this company's management will be faced with making some tough choices. It will have to decide whether it ought to curtail some exploration in order to keep the earnings up or suffer the attendant losses in the stock market at the expense of the operation.

I want to skip to one other exhibit which we have compared just in trying to make some comparisons. And I have not attached a copy of this to the materials, but I will submit it. What I felt I needed to do—having looked at the result of company A and company C, I was surprised. When I was here in June of 1989 I had testified, Senator, and I had thought that the impact would be significant, but I had no idea. And so, as I went through the comparisons of company A and company C, I wanted to check with what we knew about industry averages, or things that were in the public domain here. I am not at liberty to disclose the confidences of companies A and C, but we were able to gather some information from the public just to do a reality check, to see how far afield we might be, if at all.

And so, what we have done here on a cost per ounce basis is to compare company A and company C with the North American average as reported by Barclays with Newmont Gold's figures as reported by Barclays and American Barrick as reported by Barclays. We have added one other component to the analysis and that is another proforma for company C.

Now, I had said before that company C in some people's estimation is the most profitable gold mining company there is. And when we looked at it, it showed dramatically lower cost per ounce figures of anybody else, and it did that because it had one highly unusual operation. It happens to be one of those very rare deposits that sits at the surface, very high grade, easy to extract, and so the cost per ounce was quite low. Looking at company C skewed the data. So, we asked the accounting firm to pullout that high grade property from the operation and then take a look at company C and see how it might then compare with more of the industry average. And these were the comparisons that we got.

Cash cost per ounce we said for company A was $267. They run a fairly high cost operation, but not as high as some, $375 per ounce total. And that allows them a very small margin. We apply the royalty then to that operation. Company A is in a deficit of $25.40 per ounce at these prices. Company C, on the other hand, can afford to pay some royalties here. I do not think it can afford to pay that kind of royalty, but it can afford something here if we just take a look at company C because its cash cost per ounce is particularly low here. And so, its total cost per ounce was $231, leaving it a margin of $149. Here the government's share of the royalty would have been 30 and the shareholders of the company would have $118.

Now, if we take a look at company C with the high grade operation out of its figures, we get a very different picture. Here the costs are substantially higher because their cost of $412 per ounce in total, and there is no margin, of course, at a cost per ounce of $412, not at these prices. And so, the royalty is paid whether or not there is a profit to be made. This company runs at a very substantial deficit.

I think this is fairly realistic here. If one looks at the trends of company C, you can find that over just the past 3 or 4 years—those are the only years we really examined—the cost per ounce is steadily rising. That is because that special deposit is being exploited and it will not be there very long. And so, soon this particular company, this highest profit margin in the country, will catch up to the rest of the industry, and then this figure becomes pretty significant.

We have North American average cost figures which we had obtained from Barclays, a public document that generates data for the mining industry. And here the average cost per ounce of production in North America was $318, well ahead of company C with its special property, well ahead of the glamour companies that we found there at Newmont, but not American Barrick. Well, even this North American average company, when faced with the royalty, finds it is sharing half of its margin with the government on that 8 percent royalty. It has a margin here of $62 at today's prices. The 8 percent royalty under 1126 takes half of that. Look at some of the other companies, American Barrick and Newmont Gold. Their costs are approaching these averages.

And so, I think the consequence of all this is that we need to look very carefully at what margins are there. I was surprised at these figures. I do not think there are lots of margins there, and before I could be persuaded that the government is not now receiving a fair value for its land, I would want to have a thorough economic study done here to find out just what these economics are like among all of these industries. This is gold and gold only. This is the one people think is the most profitable. I would like to know what base metal industries would produce. I would love to know that those costs are. I do not even think I could hazard a guess I was so surprised to find these figures so extreme. There are industrial minerals out there that are similarly important, and we know very little about them.

I think that last thing I would like to say is that we made a case here for a thorough economic analysis, and I would hope that we could participate in it. We have provided the committee a very weighty document, and I know those figures are hard to go through. They have been hard for us to work through. I would like to assure the committee that we would be available to staff in the future—Coopers & Lybrand as well—to work through these numbers with you.

Senator BUMPERS. Mr. Alfers, I have allowed you to go 25 minutes because you were presumably answering questions that Senator Bingaman asked you to answer, and I am reluctant to cut anybody off short in light of that. But if we are going to get out of here in time to start voting in about an hour to an hour and a half, we are going to have to move along.

[The prepared statement of Mr. Alfers follows:]

PREPARED STATEMENT OF STEPHEN D. ALFERS, PARTNER, DAVIS, GRAHAM & STUBBS, DENVER, CO

Mr. Chairman, Members of the Subcommittee:

My name is Stephen D. Alfers. I am a Partner in the Denver office of the law firm of Davis, Graham & Stubbs. I am a mining lawyer and I have made my career representing landowners and mining companies acquiring and developing mineral properties on public and private lands in the United States. I am appearing today in response to the invitation of the Committee to present testimony which I received by Senator Bingaman's letter dated August 9, 1990.

This hearing today concerns revision of the Act of May 10, 1872, as amended, known as the General Mining Law of 1872. This is the third hearing held on this mining law, and Senator Bingaman has asked me to focus on the fees and royalty provisions of the proposed S. 1126. In preparing this statement, I confronted immediately the dearth of economic analysis available addressing the impact of S. 1126. I therefore undertook a study of my own enlisting the assistance of Coopers & Lybrand, certified public accountants. This study analyzed the financial statements of a number of gold mining companies in the United States to determine the potential impact of S. 1126 on the financial condition of those companies. In conducting this study I have had the able assistance of Richard Graff and Gregg Zajkowski, mining industry specialists in the Denver office of Coopers & Lybrand.

In preparing this statement I have also had the assistance of my colleagues at Davis, Graham & Stubbs, Lisa Bain, Esq., Chris Hayes, Esq. and Randall Hubbard, Esq., of the Denver office, and Richard Westfall and Alexandra Davis of the Washington office. We have reviewed a draft of S. 1126 and Senator Bingaman's August 9 letter and we so address our comments.

OVERVIEW

S. 1126 would have a devastating impact on the U.S. mining industry. The fee and royalty provisions manage to threaten both the junior mining and exploration companies, which account for a very substantial share of exploration dollars expended, mineral discoveries made, and considerable production, as well as the major companies which account for the greatest share of production from the most efficient operations.

Our statement is in three parts: First, we discuss our study and its impact on the specific companies we analyzed. Second, we respond to Senator Bingaman's questions on royalties, and third, we respond to the Senator's questions on fees.

I. THE ACTUAL IMPACT OF S. 1126 ON SELECTED U.S. GOLD COMPANIES

To me and many others, one of the most disturbing aspects of S. 1126 is that no economic study has been undertaken to determine the effect of this proposed law on the domestic hardrock mining industry. With the help of the accounting firm of Coopers & Lybrand, who assisted us in obtaining and preparing the attached Pro-Forma Presentations, my colleagues and I have undertaken to do a limited study of the impact of S. 1126 on the financial statements of a number of mining companies. As the exhibits to this statement demonstrate, the impact of S. 1126 would be dramatic, so dramatic that a thorough economic analysis is warranted.

To analyze the economic impact of S. 1126 on domestic gold mining companies, we approached four gold mining companies. We asked the following questions: (1) what does each company's bottom line look like today under the Mining Law of 1872? and (2) what would the company's bottom line look like if S. 1126 were enacted? All four companies provided us with us their income statements and cash flow analyses for the past three years. They also provided us with land management data (the number of unpatented lode and placer mining claims held, number of years held and the number of the claims in production) to permit us to calculate the difference in federal royalties and holding costs under the present law and under the proposed law.

Attached to this statement are sets of financials for two of the four companies, for purposes of anonymity called "Company A" and "Company C." Statements for Companies B and D were not complete in time to be included with this statement. We will supplement our statement with those additional financials at a later date.

Company A is a junior company with modest land holdings and modest production. It is publicly held. As is typical of many domestic hardrock mining companies, Company A has operated at a relatively small profit or a loss over the past few years, but has maintained a positive cash flow. Company A holds 5,243 unpatented mining claims throughout the western United States. It operates two active mines, with a third in development. Company A's sales of gold were approximately $13,000,000 in fiscal 1990.

Company C, on the other hand, is a large, publicly held company and is one of the most profitable mining companies in the United States. Company C has operated at a net income of over 33 million dollars for each of the past three years and has had a positive cash flow of over 49 million dollars for each of the past three years. Company C holds 6,522 unpatented mining claims throughout the western United States.

The Pro-Forma Income Statements attached as exhibits to this statement make painfully clear that both Company A and Company C would suffer substantial losses in income and either substantially decreased or negative cash flows if S. 1126 was enacted. The conclusions to be drawn, even from this preliminary analysis of the effect of S. 1126 on Company A and Company C, are obvious.

1. Financial Analysis of Comnany A

Company A is rather typical of the small, junior mining company in the United States. While Company A produces gold at a cost somewhat above industry average, it remains a viable company. It may operate at a loss for a period of time with positive cash flows from operations funding exploration. Company A spends almost all of its revenues in the local economies of the western states for labor, fuel, equipment and services. For the Company A's of the mining industry, losses are likely to increase up to one thousand percent as a result of the federal royalty and fee provisions of S. 1126. While cash flows had been modestly positive under the present law, under S. 1126, the negative cash flows (an estimated 5.8 million dollars applying 1988 numbers) resulting from royalty and fee payments will be so huge that Company A and its counterparts simply will not survive.

The federal royalty is a real burden for Company A, in 1990 exceeding Company A's normal cash flow. In addition, the federal royalty in fiscal 1990 was 150% of private royalty paid.

Nonetheless, for the Company A's of the industry, it is the diligence fees that force those companies out of the industry. As Schedule A–4 (p. A–5) makes clear, the diligence fees force unacceptable negative cash flows. Company A and companies like it tend to hold exploration prospects, rather than development projects. As such, its land position can absorb exploration at a much slower rate than more advanced projects. One cannot drill a hole before grass roots exploration reveals a site. The diligence fees seem far to high for early stage exploration projects. Only advanced projects can absorb exploration dollars at the rates required by S. 1126 and only companies with much greater production can afford to fund exploration at those levels.

Company C is a major gold producer in the United States, one of the most profitable publicly traded glamour gold companies in the United States. Company C has two major producing properties, Property 1, a rather typical gold operation in Nevada, and Property 2, a deposit of extraordinary grade, allowing it to enjoy low operating costs for the past few years. Costs are steadily increasing, however, and Company C can look forward to costs of future operations moving closer to industry averages. In addition, Company C has two major projects at feasibility, and plans construction of other mines soon.

For the Company C's of the mining industry, the royalty in S. 1126 is the immediate concern. Income and cash flow are likely to decrease by 20% under S. 1126, and what is even more dramatic, earnings per share on their stock are likely to decrease by 29%. Stock prices can be expected to fall, presenting difficulty in raising cash in the equity and debt markets to fund exploration activity. In addition, Company C will have to do without the services of the Company A's (which do the vast majority of the prospecting and exploration work for the larger companies) because Company A will be out of business. Company C will therefore be required to add prospecting and exploration expenses to its balance sheet.

At first glance, the diligence, recording and holding fees do not appear to be a big problem, since Company C already spends on exploration amounts sufficient to meet the obligation. However, with reduced cash flows, Company C will be tempted to bolster earnings by cutting back on exploration.

Company C is something of an aberration. Property 2 skews its financials for 1990. Accordingly, we generated Schedule C–9 (p. C–10), a stand-alone analysis of the company without Property 2. Schedule 9 shows what may be more typical of the impact of S. 1126 on the major companies. First, its net income declines 32%; its cash flow declines 46.7%; and its cash flow turns from positive to negative. The diligence fees become a factor, because without Property 2 absorbing all those low risk exploration dollars around its ore body, the company has to strain to meet the requirements of S. 1126.

In reviewing these figures with Company C personnel, we learned more interesting things. Under S. 1126, Property 1 would never have been placed into production. Moreover, we reviewed with the Company its feasibility analyses for the company's next two projects. The fee and royalty provisions of S. 1126 would threaten both projects. We then asked the Company to consider the costs of backfilling as suggested by Section 301(b) of S. 1126. Company C personnel confirmed that backfilling costs killed one project and drastically reduced the scale of the second to a high grading operation to "cherry pick" the best ores from the deposit.

Ours has been a very limited study of a few gold companies. The results are revealing, but they are not comprehensive. What the study reveals are these tentative conclusions:

—under S. 1126 small miners have no future in the U.S. mining industry;

—few junior mining companies will survive, leaving no industry component ready to take on the high risk exploration projects and advance them to the stage at which the majors become interested;

—many mines will close, almost entirely in the western states, with the attendant losses of jobs and tax revenues to state, local and federal treasuries;

—the rate of construction of new mines will decline precipitously;

—the level of exploration activity and discovery of new deposits will decline;

—private landowners will enjoy a considerable advantage over mining claimants, and mining activity will concentrate on private lands and in other countries.

There is one conclusion that is undeniable. So far, no comprehensive economic study of the impact of S. 1126 has been done, and one is surely needed. We cannot afford a mistake here. S. 1126 affects all minerals, most prominently metals. Metals and most other locatable minerals are traded in world markets. They are not like coal. There are no rate payor-consumers of these products ready to absorb high costs of royalties and holding fees through ever increasing prices for products. If we err on the high side in this case, we will simply push our mining industry beyond our shores.

II. THE ROYALTY IN S. 1126

1. Summarize the advantages and disadvantages of a royalty

We want to make clear from the outset that we oppose a royalty. So far as we can tell, the profit margins are very thin in the mining industry, and getting thinner all the time. We want to see a thorough economic analysis to justify any royalty at all.

In a very real sense, the mining law is a transaction between a landowner—in this case the government—and a miner. Analogies to private transactions, while not altogether apt, are useful here.

Like most transactions in mining, the value of the minerals is uncertain. In such circumstances, it is difficult to agree upon a purchase price. The landowner does not want to give up the bonanza that he is certain reposes in the land, and the miner is unwilling to pay cash for minerals yet undiscovered. Historically, miners have acquired mining rights in return for royalty, the return to a landowner measured by mineral product extracted from the land.

Because a royalty is based upon mineral production, it has distinct advantages for both the landowner and the miner. First, a royalty allows the landowner to receive something commensurate with his contribution, the land. If the land is known to contain a large, proven ore body, the landowner is entitled to a large royalty. If the land is merely a prospect, or exploration target, the landowner is entitled to a very modest royalty. The landowner contributes nothing to the cost of extracting the mineral in return for his royalty, nor, in the case of federal lands, does the landowner contribute to the costs of discovering the mineral. In the case of S. 1126, the government cannot justify more than a mode of royalty.

For the landowner, then, the primary advantage of a royalty is that it is non-cost bearing and risk-free: if minerals are produced, he receives a royalty payment, while if no minerals are produced he has lost nothing.

For the miner, the advantage of a royalty is that it is a deferred cost, rather than an up-front cost, and is payable to the landowner only when and if minerals are produced from the property. In addition, a royalty is generally calculated on the value of the mineral measured at the mine-mouth. The miner, therefore, retains the value added by his processing and beneficiation of the mineral. For both the landowner and the miner, a carefully drafted royalty can be simple to calculate, simple to administer and can provide both parties an adequate return on the mineral extracted.

However, while a royalty can be an effective method of providing a fair return on mineral production to both the landowner and the miner, there are significant disadvantages to a royalty which is neither deposit-specific nor mineral-specific. First, such a royalty can be inflexible. When a landowner and a miner negotiate a royalty with respect to a specific piece of property with specific geological characteristics, specific suitability for exploration, knowledge of the quality and quantity of the target mineral and knowledge of access to both processing facilities and the market, the royalty is likely to fairly approximate the landowner's contribution. The parties negotiate a royalty which allows the miner to recoup his anticipated costs on that project and allows the landowner adequate consideration for the miner's use of his land. If the landowner insists on a royalty which is too high for the particular deposit, the miner will take his operation elsewhere. The fairness of the landowner's royalty, therefore, depends upon the characteristics of the deposit.

In most cases though, the parties do not have specific knowledge of a deposit and the royalty negotiated represents the parties' best guess about the characteristics of the deposit yet to be discovered. Sometimes after a deposit is discovered, the parties learn that they negotiated too great a royalty burden. The projected costs of extraction are so high and the miner's margin of profit so thin that the additional cost represented by even a minimal royalty makes the deposit uneconomical to mine. A royalty pushes those deposits out of the resource base. In the private sector, royalties can be renegotiated, but renegotiation is not possible when the landowner is the government. When the landowner is the government, a royalty becomes quite inflexible. Deposits which fail the feasibility analysis because of the federal royalty simply drop out of the public resource base. The higher the royalty, the greater the loss of mineral resources to the public.

2. Comment upon the royalty provision of S. 1126.

The royalty provision of S. 1126, Section 203(d), provides for a reservation to the United States of an "overriding royalty of 8 per centum of the value of hardrock mineral production." Technically, Section 203(d) does not describe an "overriding royalty." An "overriding royalty" is a royalty carved out of a working interest, usually a lease. "Overriding royalties" are common in the oil and gas business, but are much less common in the mining business. Section 203(d) creates a royalty more closely akin to a "landowner's royalty." But here the landowner is the sovereign. The sovereign's royalty really needs no adjective. The term "royalty" is more artful.

The imposition of some royalty on minerals produced from public lands is not objectionable in principle. However, it remains to be seen whether economic analysis can justify a royalty, and, if so, how much. In addition, there are some specific objections to the royalty in S. 1126.

a. An 8 percent gross proceeds royalty is too high

A royalty on the value of mineral production, such as that described in S. 1126, is what the mining industry refers to as a "gross proceeds" royalty. A gross proceeds royalty is computed as a percentage of total receipts from the sale of the extracted mineral, without deductions for the miner's cost of beneficiating the ore to a saleable product. Obviously, the miner must pay the royalty out of his margin, the difference between his unit cost and unit price. Thus, the weight of the royalty burden depends on the miner's margin. Profit margins depend on many variables, including the product involved and deposit-specific factors such as ore grade, metallurgy, stripping ratios, lifting costs, environmental protection measures, mining methods to be employed (for example, underground or open pit), tonnages of waste rock versus ore and a myriad of other factors. Take gold for an example. At current gold prices, say $375 per ounce, an 8% gross proceeds royalty on gold would be 8% of $375, or $30 per ounce.

At first glance, a $30 per ounce royalty payment seems relatively modest given the price of gold. Consider, however, the costs of the typical gold operation. It is not unusual today to find a miner operating with a total cost per ounce (including "finding cost") of nearly $360. In the first half of 1990, the average "cash cost per ounce" for mining companies operating in North America was $238 and the average "total cost per ounce" was $318. See Barclay's De Zoete Wedd Research Limited, June 1, 1990, p. 14. "Total cost" as reported usually does not include exploration or finding costs. If we add in typical finding costs of $40 per ounce, the total cost per ounce of gold reaches $358. Accepting these reported averages, the royalty in S. 1126 eats up all of the typical mining company's profit. As set forth on Exhibit C, even for an extraordinarily low-cost producer, an 8% gross proceeds royalty eats up 20% of the profit. In our view, a royalty which takes between 20% to 100% of the miner's profits is too high.

It is difficult to say what an appropriate royalty would be. Clearly, an 8% royalty is too high, even for gold. We suspect that the results would be even more striking for copper, tin, lead, zinc and other base minerals. We suspect that the results would be less striking for the industrial minerals, but we do not know for sure. Before we determine the appropriate level of a royalty, we ought to ask a number of questions. The wisdom of a royalty, and its level, depend upon the answers:

—Do we know the margins of profit in the minerals industry for different hardrock minerals?

—Do we know the value of public mineral resources which will be made uneconomic to extract by the imposition of a royalty?

—Do we know how many currently profitable mining operations will be rendered unprofitable and shut down?

—Do we know which states and counties within each state will bear the brunt of mining operation shut-downs?

—Do we know how much money mining companies now invest in state and local economies?

—Do we know the monetary value of the royalty which will be returned to the states under the provisions of S. 1126? Do we know the monetary value of the federal and state income taxes which will be lost as a result of decreased mining operations?

b. The royalty provision of S. 1126 is inadequately drafted

S. 1126 should make clear how the royalty should be paid. In addition, S. 1126 should resolve some other issues particularly troublesome in hardrock mining.

First, Section 203(d) of S. 1126 provides no method of royalty calculation. To calculate a royalty one must know both the royalty percentage and the royalty base, the value upon which the royalty percentage is to be applied. Is the royalty to be based on the value of ore at mine-mouth, on the value of saleable products created downstream from the mine? Historically, a royalty is based on the value of ore at mine-mouth, without deduction for mining costs. Because landowners do not risk the capital for processing facilities, they generally do not expect to share in the value added by the miner through beneficiation and processing of the ore prior to sale.

There are a few untried issues on royalty calculation worth raising here. Some hardrock minerals are sold in markets so highly developed that miners can sell their products forward, engage in future transactions or obtain commodity loans. Are the proceeds of such transactions included in a royalty base? The answer should be no. What are the consequences of a miner's sales transactions at less than best available price? Is the government prepared to ride with the miner's marketing skill, or instead will the government second guess the miner's sales?

Second, S. 1126 does not specify when the royalty shall accrue. A royalty may accrue to the landowner upon extraction of the mineral, upon stockpiling of the mineral, or upon a sale of the mineral products by the miner. Because the miner generates cash upon the sale of product, S. 1126 should provide that the royalty accrue upon sale of product.

Third, S. 1126 should provide for a clear method of calculation consistent with a mine-mouth royalty. If, for example, there exists no market for ore in the raw, crude state, S. 1126 should provide that the royalty is based on the value of the product sold while allowing for deduction for the costs of beneficiation of the ore to a saleable product. In other words, the miner should be able to back out costs of processing and transportation, but not mining costs.

Fourth, S. 1126 should allow commingling of royalty-bearing minerals with non-royalty bearing minerals or with minerals subject to another party's royalty. Commingling of the minerals should be permitted on the condition that the ores subject to differing royalty burdens are weighed and sampled before being commingled for processing in accordance with sound mining and metallurgical methods.

Fifth, S. 1126 does not tailor the proposed royalty to fit different minerals. An 8% gross proceeds royalty on certain hardrock minerals, such as talc, may be too high, while an 8% gross proceeds royalty on other minerals, such as beryllium, may be too low. A fair royalty must be somehow tailored to fit individual hardrock minerals by considering the profit margins customarily received by the miner for each mineral.

Sixth, S. 1126 should address the question of unrecovered and perhaps unrecoverable minerals. Is the proposed royalty payable upon only the gross proceeds of the sale of mineral products recovered by the miner? Does the same rate apply to by-products and co-products? A typical metallic deposit typically contains a wide array of minerals, gold, silver, copper, lead, zinc, molybdenum, antimony, just to name a few. Must the miner pay royalty on minerals he chooses not to recover?

Finally, in the event of reprocessing of waste rock or tailings, does the S. 1126 royalty apply once again? If so, S. 1126 should confront and perhaps preempt settled rules of common law concerning ownership of waste and tailings.

3. Summarize the advantages and disadvantages of the following alternatives to the royalty provision in S. 1126

a. A royalty based on net smelter return

A royalty based upon a net smelter return has the advantage of ease of calculation and administration. Transportation, insurance and security costs, as well as nominal refining charges for the beneficiated mineral are backed out of the sales price and the landowner's royalty is paid as a percentage of the value of the beneficiated mineral product. In addition, the net smelter return is a proceeds royalty payable on actual sales of mineral products and not on unrecovered minerals.

The disadvantage of a royalty based on a net smelter return is that it is limited in application to metals. Of course, nonmetallic hardrock minerals are not refined at a smelter or other refiner and therefore a net smelter return is not an appropriate method for calculation of a royalty for such minerals. In addition, even for metals, a net smelter return royalty is itself an anachronism. Historically, to keep it simple, processing costs (as opposed to transportation and nominal refining costs) were not deducted from the royalty base for a net smelter return. In the last century when high grade metals were mined and shipped to a mint or smelter without substantial beneficiation, the net smelter return was a simple, verifiable way to pay on proceeds of sale. Today, of course, metals are sold after extensive and costly beneficiation. When a net smelter return royalty is paid nowadays as a landowner's royalty, the royalty rate is usually very low in recognition of the fact that the net smelter return includes a great deal of value added by processing.

b. A royalty as a percentage of gross income for depletion purposes, not to exceed a fixed percentage of taxable income

A royalty based upon a percentage of gross income for depletion purposes is based upon gross income from production, valued at that point in time before the miner begins what is considered by the tax code to be refining of the mineral. The advantage of this method of calculation is that it bases a royalty on something that approximates mine-mouth value. In addition, the approach uses a concept already used by miners in order to figure depletion for tax purposes.

The disadvantages of this method of calculation are that the percentages of both gross income and of taxable income should be calculated differently for different minerals and must take industry margins on each mineral into account. In addition, this method would require two sets of books: one for income from public lands and one from other lands. The percentage of taxable income should not be the miner's entire taxable income, but must be keyed to taxable income from the producing property.

c. A broad-base, low-rate royalty imposed at point of first arm's-length sale

A "broad-based" royalty imposed on minerals upon the proceeds of sale would be relatively simple to calculate and to administer. Such a royalty would be highly arbitrary, however, if imposed without regard to operating margins specific to different minerals and different products. The royalty rate would have to be quite low, trading, perhaps, a more carefully drawn royalty base for the efficient administration of a low gross royalty.

d. Imposition of a different royalty for different groups of minerals

A royalty tailored to different groups of minerals recognizes that markets for mineral products vary widely. Some industries enjoy higher margins than others. A royalty might be imposed upon groups of minerals sharing similar attributes. The groups could be established, however, only after a great deal of economic analysis. Once established, they would require regular review and revision to correspond to the changes in the world and local markets for mineral products. A royalty should be based upon the value of the mineral and the costs of extraction and beneficiation. Gold, perhaps, should not carry the same royalty as beryllium.

The primary disadvantage of imposing different royalties for different minerals is that the administrative costs of monitoring the program will be high. Moreover, as extraction and processing technology change, the royalty calculation must be revised or recalculated.

III. THE FEE PROVISIONS OF S. 1126

1. Summary of the fee provisions of S. 1126

S. 1126 imposes a number of new fees on mining operators and claimholders. They are:

a. An annual "holding fee" of $100 per exploration claim or mineral patent (§ 204(e)(1)), which has no counterpart in the 1872 General Mining Law.

b. An annual "surface use fee" of no less than $5 per acre for so much of the surface of a "mineral patent" as the Secretary of the Interior or the Secretary of Agriculture determines is necessary to develop a claim (§ 203(d)), which also has no counterpart in the present law.

c. A one-time recordation fee of $100, charged to the claimant on the filing of a notice of location (§ 202(b)), which is ten times the present cost of filing required under the Federal Land Policy and Management Act, 30 U.S.C. 1701 et seq. ("FLPMA"), and 43 C.F.R. 3833.1–3.

d. "Diligence" fees, ranging from $50 per acre for exploration claims in the first five years of a claim's life to $300 per acre for mineral patents in the last five years of a patent's life. An operator may expend these amounts in diligence work, or pay them directly to the federal government in lieu of work. The work requirement represents a ten- to sixty-fold increase over the amounts presently required. The provision for payment in lieu of assessment work does not exist in the current law.

Under FLPMA and the mining law as they presently exist, a mining claimant must pay a one-time recordation fee of $10 and an annual filing fee of $5, and must annually conduct at least $100 worth of assessment work for the benefit of each claim. Under the proposed S. 1126, a claimant will have to spend $1,200 in filing and holding fees and diligence work or fees in the first year of each claim, $1,100 per year for the next four years, and $2,100 per year in years six through ten. If a miner converts his claims to mineral patents, he will then pay holding, filing, surface use and diligence fees of $2,200 per patent in years one through five, $4,200 in years six through ten, and $6,200 in years eleven through fifteen. Under the graduated scheme of diligence costs proposed in this bill, a claimant who holds a mining property for the full ten-year life of an exploration claim and the fifteen-year life of a mineral patent will incur filing, holding, surface use and diligence costs of $79,100 per claim.

The burden imposed on mining operators by those proposed fees is heavy. Early in the life of a claim, the annual cost of maintaining a claimant's rights would be about ten times greater than at present. After 20 years, the annual cost of a mineral patent under the proposed system would be 40 times greater than that for an unpatented claim under the current system.

The economic burden of the proposed system will have several undesirable effects. First and foremost, it will force many small- to medium-sized mining companies to give up mining on public lands in the United States. Many deposits that are now being worked at slim profit margins will be made uneconomic by the fees proposed in S. 1126, and many promising deposits will be left undeveloped because the costs of mining under this bill will preclude any profit.

Second, the proposed fee structure will create a bias toward large, concentrated development and against small operations. Only large companies will be able to afford the high annual carrying costs of holding mining acreage under the proposed law. Companies will be able to achieve profitability only on large, high-grade deposits secured by large blocks of claims.

Third, the proposed system will promote speculation rather than development. Under the present law, a claimholder may protect his claims under the doctrine of pedis possessio by actually occupying and working them. Other prospectors may not assert any equal or superior rights to his claims while he does so. However, if he ceases to work his claims, or fails to make a discovery, others may assert a superior right to his claims on the basis of their own discoveries. Therefore, a claimant has good title against others only as long as he works his ground, or after he makes a discovery. Mining claimants are thus highly motivated to develop their claims, because they risk losing them if they fail to do so.

The system of "exploration claim" permits proposed in S. 1126 will provide great security of title to the holder of exploration claims, merely by the payment of a fee in lieu of assessment work. This stands on its head the motivation of claimants to develop their claims, and creates instead a motivation to delay and speculate in the hope that another operator will make a discovery nearby and drive up the value of all claims in the vicinity.

If claimholders can secure their claims either by assessment work or by simple payment of the same amount of money in lieu of assessment work, few of them will elect the risk of having their assessment affidavits examined closely and possibly disallowed, with consequent loss of their claims. Most will choose instead to pay their in-lieu fees, and delay development.

Rather than promoting development, the fee provisions of S. 1126 will make speculative holding of claims easier and more attractive, and will actually lower the incentives to operators to develop their claims. At the same time, the high annual holding costs imposed by this bill will drive small operators out of mining on public lands, and result in concentration of claims in the hands of large companies which can afford to maintain extensive claimholdings.

In conclusion, the fees proposed in S. 1126 will greatly increase the overall cost of doing business while not yielding any commensurate benefit to the public or the mining industry. Those fees will promote and enable the speculative holding of claims by large companies, and will discourage their diligent assessment and development.

2. Alternatives to the fee provisions of S. 1126

A mining law should promote development of mineral resources on public lands in an economically and environmentally responsible fashion. It should be self-initiating, and self enforcing. It should not encourage speculation, and the costs of administering it should be at a minimum.

a. Recordation and filing fees

Under these criteria for evaluating alternatives, high up-front costs to claimants should be avoided. Certainly, modest fees to cover the costs of administering a recording system are reasonable. However, the annual filing and recordation fees contained in the proposed bill, which must be paid upon locating any claim, represent a significant burden small miners, exploration companies and junior mining companies. If these fees are to provide a source of revenue to administer the recordation system, they should be made recoverable by the operator out of any royalty that may be imposed.

Legislation is not necessary to impose such recordation and filing fees. Modest fees of that nature are imposed now, and ample authority exists for increasing those fees (as the Bureau of Land Management did in 1989).

b. Assessment requirements

The assessment work requirement under the 1872 law may not have been intended to promote development and discourage speculative holding of claims. While assessment work may have had the effect of advancing such policies, those policies are rather more effectively served by requiring discovery of a valuable mineral and the strict application of pedis possessio. If the $100 annual requirement seems low, it might reasonably be raised by a simple amendment to the existing law. It is important to retain the requirement of actual work, and not allow the payment of fees in lieu of assessment work. Although the in-lieu payment looks attractive as a source of revenue, in reality, it will promote speculative holding of claim blocks, and reduce tax revenue-generating mining activity. Mining operators will no longer have incentives to develop their claims, and small operators will be unable to afford the cost of holding claims by payment of fees in lieu of assessment work. Therefore, much less revenue-generating work will be done, and many mining operators will be forced out of business.

Any system that replaces the Mining Law of 1872 should provide that the federal government receive its return to the treasury from a share of production, via a royalty or taxes, rather than from rental. A claim-rental system will not promote development, and will burden the industry with unproductive expenses. For these reasons, rental schemes in the form of high holding fees should be avoided in favor of revenue paid as a share of production or income.

c. Surface-use fees

S. 1126 provides no method of calculating surface use fees, and it provides a floor but no ceiling for those fees. The proposed surface-use fee is to go to the federal treasury, one-half to be returned to the states. The purpose for which receipts are to be used is not prescribed.

If the fees are to be used to ameliorate surface damage and damage to infrastructure due to mining activity, it would be more desirable to impose a small surcharge on the value of production from federal lands, and designate that proceeds from that surcharge be used for mined-land reclamation and for reimbursement to state and county governments.

If the fees are considered to be general revenues, then they are simply a tax on the use of federal lands. It would be fairer and more productive to recover the value of the use of federal lands in the form of a low royalty on production. This would yield revenue to the federal government when an operator is actually producing value, and would not impose costs when the operator is preparing or shutting down production. Further, it reflects a share of the actual value of production, rather than an arbitrary measure of the "value" of all federal lands.

3. Should the federal government recover the costs of administering the mining law program through the imposition of fees?

This question consists of two parts that should be separated and identified. The first question is: Should the federal government impose a new layer of regulation and administrative enforcement on extractive users of the public lands? The second question is: Should the mining industry pay for it through user fees?

The first question is the more difficult and the more important. A new regulatory scheme should be imposed only where it promises to correct, through regulation, a situation that society perceives to be undesirable. If an industry is acting irresponsibly, or imposing large external costs on society as a whole, it may be reasonable to regulate it and require that it bear the costs of regulation. If an industry receives a significant benefit from government, such as the operation of a mining claim recordation and priority system, it may be reasonable for the direct beneficiaries of that system to bear a significant percentage of the cost.

Regulation of an industry should be no more onerous or pervasive than necessary. The program that S. 1126 appears to contemplate assumes that greater regulation of the mining industry is necessary. This assumption should be examined. S. 1126 imposes new surface use fees, new initial and annual filing requirements, and new diligence fees. It will impose a large filing and regulatory burden on the mining industry, will necessitate the creation of a new layer of bureaucracy to administer it, and will cause much of the claims dispute process to be moved from the state private law arena, where it is well established and works effectively, to the federal administrative decision and appeals forum.

There is no reason to increase the administrative and regulatory costs of a system that works well by imposing on it new and artificial requirements. The system contemplated in S. 1126 will not promote development of mineral deposits. It will not provide a better system of recording and priority than exists now. It will not provide for more efficient settlement of disputes. It will only increase the costs of mining on public lands, and ultimately weaken the domestic mining industry.

Because I believe that the system presently in place serves the interests of society through generation of wealth and payment of taxes, and serves the mining industry by providing a stable system in which to work, I am opposed to placing new burdens on the industry. For those same reasons, I believe that it would be improper to charge the mining industry to support a system which increases its burden of doing business while providing no commensurate benefit.

4. What are the benefits of fees in promoting the diligent development of claims, as opposed to

a. Assessment work requirements and

b. Limited primary terms for claims?

Fees appear to have some advantages in the administration of mining lands. Under a fee structure, an operator faces a known and easily calculable cost of holding claims during any given period. The operator can choose to avoid those costs at any time by dropping his claims or by developing them. Fees can displace the need to do assessment work, and eliminate its short-term environmental consequences of such work. Finally, the operator can do his assessment and development work when market conditions dictate, rather than according to the dictates of an annual assessment requirement.

Fees also suffer from some disadvantages when compared with an assessment work requirement as a device to promote diligent development. Fees paid for a claim provide greater security of title to an operator at the early stages of a claim's life. While this sounds like an advantage, it really is a drawback, because it promotes speculative holding of claims rather than diligent development. The annual assessment work requirement and the doctrine of pedis possessio, which provide secure tenure to the claimholder only as long as he actually is working his claims, reduce the opportunity for speculation, and requires the operator to move toward development at the risk of losing his claim to another.

An annual fee in place of assessment work has a more insidious disadvantage as well. Payment of the annual fee is simple and predictable. However, payment of fees does nothing to advance a claimant's knowledge of the value or extent of any deposits on his claims, and the fees paid will in most cases take money from a company's exploration and assessment program. Therefore, rather than promoting development of claims, an annual fee requirement is likely to retard development when compared to an assessment requirement.

Another alternative to a fee requirement, the limited primary term, also offers some advantages. A fixed term forces operators to decide whether and how to develop their claims within a limited time, and provides them with a certain window of opportunity in which to do so. Finally, it may promote the relinquishment of marginal or uneconomic claims.

Limited terms are not a panacea, however. To be credible, a limited term must have a definite beginning and end, and provide security of title in the interim. This again raises the problem of speculation. Further, term expiration pressure may drive some operators to decide to try to develop claims rather than relinquish them on the basis of other than valid economic and technical considerations. Finally, security of title combined with a long claim life may reduce the opportunities to force claimholders to develop or relinquish, while a short claim life may not give the operator adequate time to evaluate properties for development.

Assessment work requirements combined with the doctrines of pedis possessio and discovery remain the best method to promote development of claims. An operator without a discovery must diligently occupy and work its claims or risk losing them to another claimant who makes a discovery. This combination of incentive to develop and penalties for failure to do so is a potent device to encourage evaluation of claims. It is difficult to envision a fee structure or term limitation arrangement that would be more effective. In addition, this system under the existing law is self-enforcing with virtually no administrative role for or cost to the government.

5. What is the appropriate level of a surface-use fee that would provide a fair return for the use of federal lands?

Claimants under the General Mining Law of 1872 are presently charged no fee for the use of the surface of land they claim. Claimants are, however, required to reclaim the land under state reclamation laws and surface management regulation of the Bureau of Land Management and the U.S. Forest Service. The federal government derives its revenue, if any, from mining activity in the form of taxes on the mining enterprise or individual, and in taxes on the employees or contractors of the enterprise.

The private sector provides a useful comparison. When a mining operator and a private landowner conclude an agreement to allow development of a mine on the landowner's property, there generally is no "surface-use fee" charged to the miner. Instead, the landowner may receive a bonus and a royalty, carefully calculated and negotiated on the basis of what is known about the particular deposit to be developed. The landowner doesn't receive a surface-use fee because he is receiving the value of use of the surface of his property in the form of a share of production. If there is no production, then the surface has no value for mining; if there is production, the landowner recovers the portion that represents surface use as a fraction of his royalty.

The federal government as a proprietor is entitled to receive a fair return from mining operations conducted on federal lands. However, the value of surface use should properly be recovered through royalty payments or taxes on mining activities, rather than use fees.

IV. DISPOSITION OF FEES ON ROYALTIES COLLECTED

The provisions of S. 1126 allocate any revenues generated under the bill in two ways. Section 401(a) provides that all receipts from surface-use fees, payments in lieu of assessment, and royalties are to be paid to the Treasury. The federal government in turn is to pay 50% of those receipts to the states in which hardrock mineral deposits are located and produced, and retain the balance as general revenue. Section 401(b) directs that the proceeds of recording fees and annual holding fees be given to the surface management agency that oversees the land on which a claim is located, to be used for administration of the Act.

I am generally opposed to the imposition of surface use and annual holding fees, and believe that fees in lieu of assessment work is a bad idea. Further, the filing and recordation fees proposed by the bill are larger than they need to be. However, there are appropriate areas for disposition of fees imposed under a new mining law.

It would be appropriate to dedicate fees to the reclamation of mined lands, for example. Mining has undeniable effects on the surface of mineral lands. Entities that mine on public lands and do not reclaim or restore those lands are imposing costs on society, either in the form of polluted or unusable lands, or in the cost of reclamation. If the federal or state government undertakes to reclaim mined lands, it is fair to use some of the fees generated under a new mining law to meet these costs. This places the costs of reclamation more directly on the beneficiaries of mining on federal lands.

State and county governments in which mining activity is located would also be appropriate recipients of fees. These entities are participants in the mining enterprise, in that they provide the services and infrastructure needed to mine. States and counties may incur heavy costs in providing roads, schools, sewers, police and fire protection, and all the other services that local government furnishes. The mining operator is a direct beneficiary of these services, and it is again appropriate that a portion of any fees paid should go straight to the state or county governments that provide them.

There are two areas for fee disposition deserving comment. First, directing receipts from recordation and filing fees to the surface management agency may make sense. Second, royalties or use fees should not be directed to the general treasury.

If this bill is a revenue measure, it is misguided. The general treasury will benefit more from the taxes on a vigorous mining industry than from in lieu fees and royalties. Attempting to raise revenue by imposing in lieu fees, surface-use fees and royalties is short-sighted and self-defeating.

If the bill is intended to shift to the mining industry costs that are now externalized, then modest recording fees, shared by the surface management agency with the state and local governments, are appropriate. In addition, low royalties that are largely returned to the states or dedicated to mined-land reclamation make sense. What does not make sense is the creation of a large new body of federal bureaucracy and the imposition of its costs on an industry that cannot bear the costs.

CONCLUSION

We want to thank the Committee for this opportunity to participate in the deliberations on the bill. We recognize that our statement includes financial data which the Committee may need time to digest. We want to assure the Committee of our continued availability to the Committee to discuss our statement or any other issue pertaining to S. 1126.

Exhibit to Statement of Stephen D. Alfers before the
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Company A
Background Information

Company A was established in 1980. Company A is engaged in the identification of, acquisition of and exploration for precious metals mineral properties and in developing and placing such properties into production. Company A's mineral rights include mining properties located in Arizona, California, Colorado, Maine, Montana, Oregon, Nevada and Utah. Due to the expense associated with the exploration and development of mineral properties, Company A may enter into lease or venture arrangements with other companies.

Company A's producing properties are in the State of Nevada. Company A employed approximately 60 people as of June 1, 1990. Cash expenditures in the State of Nevada during fiscal 1990 were approximately $8,400,000. Cash expenditures are primarily mine site operating expenditures, including payroll.

Exhibit A to Statement of Stephen D. Alfers before the
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Schedule 1 Company A Pro-Forma Income Statement		Fiscal 1990 Under Mining Law of 1872	Case 1 Fiscal 1990 Under Mining Law of 1990	Case 1 % Change Under Mining Law of 1990	Case 2 Fiscal 1990 Under Mining Law of 1990	Case 2 % Change Under Mining Law of 1990
Sales of Precious Metals		$12,844,780	$12,844,780		$12,844,780	
Operating Costs and Expenses:						
Costs of Mining and Processing		$12,269,622	$12,269,622		$12,269,622	
Writedown of Inventory		$374,000	$374,000		$374,000	
Royalties		$457,583	$457,583		$457,583	
Federal Royalties			$861,913		$1,027,582	
Holding and Use Fees - Producing Properties	ASN 4		$28,000		$28,000	
General and Administrative		$994,658	$994,658		$994,658	
Total Costs Applicable to Sales		$14,095,863	$14,785,776	4.89%	$15,151,445	7.49%
Gross Operating Margin		($1,251,083)	($1,940,996)	-84.03%	($2,306,665)	-83.25%
Exploration		$241,618	$241,618		$241,618	
Royalties on nonproducing properties		$41,805	$41,805		$41,805	
Writedown of Mining Equipment Held For Sale		$1,680,000	$1,680,000		$1,680,000	
Abandonment of Properties		$88,793	$88,793		$88,793	
Minimum Diligence Requirement Adjustment	ASN 3		$5,360,382		$5,360,382	
Holding Fees - Non-Producing Properties	ASN 4		$510,300		$510,300	
Income (Loss) from Operations		($3,303,299)	($9,863,894)	-198.61%	($10,229,563)	-209.68%
Other Adjustments		($621,594)	($621,594)		($621,594)	
Income Taxes		($40,000)	($40,000)		($40,000)	
Net Loss		($3,964,893)	($10,525,488)	-165.47%	($10,891,157)	-174.69%
Loss Per Share		($0.18)	($0.48)	-165.47%	($0.49)	-174.69%
High Stock Price		$1.81	N/A		N/A	
Low Stock Price		$0.72	N/A		N/A	
Price Earnings Ratio - High Stock Price		N/A	N/A		N/A	
Price Earnings Ratio - Low Stock Price		N/A	N/A		N/A	

ASN = See Assumptions Used in the
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Schedule 2 Company A Pro-Forma Income Statement		Fiscal 1989 Under Mining Law of 1872	Case I Fiscal 1989 Under Mining Law of 1989	Case I % Change Under Mining Law of 1989	Case II Fiscal 1989 Under Mining Law of 1989	Case II % Change Under Mining Law of 1989
Sales of Precious Metals		$9,328,208	$9,328,208		$9,328,208	
Operating Costs and Expenses:						
Costs of Mining and Processing		$6,951,802	$6,951,802		$6,951,802	
Royalties		$236,988	$236,988		$236,988	
Federal Royalties			$480,698		$746,257	
Holding and Use Fees - Producing Properties	ASN 4		$28,000		$28,000	
General and Administrative		$982,680	$982,680		$982,680	
Total Costs Applicable to Sales		$8,171,470	$8,680,168	6.23%	$8,945,727	9.48%
Gross Operating Margin		$1,156,738	$648,040	-43.98%	$382,481	-66.93%
Exploration		$302,114	$302,114		$302,114	
Royalties on nonproducing properties		$70,800	$70,800		$70,800	
Abandonment of Properties		$133,446	$133,446		$133,446	
Writedowns of Non-Producing Properties		$800,000	$800,000		$800,000	
Minimum Diligence Requirement Adjustment	ASN 3		$5,299,886		$5,299,886	
Holding and Use Fees Non-Producing Properties	ASN 4		$510,300		$510,300	
Income (Loss) from Operations		($149,622)	($6,468,506)	-4223.23%	($6,734,065)	4400.72%
Other Adjustments		$428,630	$428,630		$428,630	
Income Taxes		($54,000)	($54,000)		($54,000)	
Net Income		$333,008	($5,985,876)	-1897.52%	($6,251,435)	-1977.26%
Earnings Per Share		$0.02	($0.36)	-1897.52%	($0.38)	-1977.26%
High Stock Price		$2.19	N/A		N/A	
Low Stock Price		$1.06	N/A		N/A	
Price Earnings Ratio - High Stock Price		N/A	N/A		N/A	
Price Earnings Ratio - Low Stock Price		N/A	N/A		N/A	

ASN = See Assumptions Used in the
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Schedule 3 Company A Pro-Forma Income Statement		Fiscal 1988 Under Mining Law of 1872	Case 1 Fiscal 1988 Under Mining Law of 1989	Case 1 % Change Under Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Under Mining Law of 1989
Sales of Precious Metals		$4,461,040	$4,461,040		$4,461,040	
Operating Costs and Expenses:						
Costs of Mining and Processing		$2,635,837	$2,635,837		$2,635,837	
Royalties		$77,913	$77,913		$77,913	
Federal Royalties			$229,885		$356,883	
Holding and Use Fees - Producing Properties	ASN 4		$28,000		$28,000	
General and Administrative		$723,022	$723,022		$723,022	
Total Costs Applicable to Sales		$3,436,772	$3,694,657	7.50%	$3,821,655	11.20%
Gross Operating Margin		$1,024,268	$766,383	-25.18%	$639,385	-37.58%
Exploration		$428,420	$428,420		$428,420	
Royalties on nonproducing properties		$20,000	$20,000		$20,000	
Minimum Diligence Requirement Adjustment	ASN 3		$5,173,580		$5,173,580	
Holding Fees - Non-Producing Properties	ASN 4		$510,300		$510,300	
Income (Loss) from Operations		$575,848	($5,365,917)	-1031.83%	($5,492,915)	-1053.88%
Other Adjustments		($481,583)	($481,583)		($481,583)	
Income Taxes		($40,000)	($40,000)		($40,000)	
Net Loss		$54,265	($5,887,500)	-10949.53%	($6,014,498)	-11183.57%
Loss Per Share		$0.00	($0.36)	-100.00%	($0.37)	-100.00%
High Stock Price		N/A	N/A		N/A	
Low Stock Price		N/A	N/A		N/A	
Price Earnings Ratio - High Stock Price		N/A	N/A		N/A	
Price Earnings Ratio - Low Stock Price		N/A	N/A		N/A	

ASN = See Assumptions Used in the
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Schedule 4 Company A Pro-Forma Statement of Cash Flows		Fiscal 1990 Under Mining Law of 1872	Case 1 Fiscal 1990 Under Mining Law of 1989	Case 1 % Change Under Mining Law of 1989	Case 2 Fiscal 1990 Under Mining Law of 1989	Case 2 % Change Under Mining Law of 1989
Cash Flows from Operating Activities						
Cash Received from sales of precious metals		$11,966,424	$11,966,424		$11,966,424	
Royalties Received		$0	$0		$0	
Interest Received		$49,645	$49,645		$49,645	
Cash paid to suppliers and employees		($10,407,657)	($10,407,657)		($10,407,657)	
Federal Royalties Paid			($661,913)		($1,027,582)	
Income taxes		($20,431)	($20,431)		($20,431)	
Interest Paid(Net of Capitalization)		($737,314)	($737,314)		($737,314)	
Cash Paid for Minimum Diligence Adjustment	ASN 3		($5,360,382)		($5,360,382)	
Holding and Use Fees - Producing Properties	ASN 4		($28,000)		($28,000)	
Holding and Use Fees - Non-Producing Properties	ASN 4		($510,300)		($510,300)	
Net Cash Provided(Used In) by Operating Activities		$850,667	($5,709,928)	-771.23%	($6,075,597)	-814.22%

ASN = See Assumptions Used in the

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[illegible] Company A [illegible] Pro-Forma Statement of Cash Flows		Fiscal 1989 Under Mining Law of 1872	Case 1 Fiscal 1989 Under Mining Law of 1989	Case 1 % Change Under Mining Law of 1989	Case 2 Fiscal 1989 Under Mining Law of 1989	[illegible] Law of 1989
Cash Flows from Operating Activities						
Cash Received from sales of precious metals		$8,698,806	$8,698,806		$8,698,806	
Royalties Received		$5,000	$5,000		$5,000	
Interest Received		$86,058	$86,058		$86,058	
Cash paid to suppliers and employees		($7,487,008)	($7,487,008)		($7,487,008)	
Federal Royalties Paid			($480,698)		($746,257)	
Income taxes		($3,414)	($3,414)		($3,414)	
Interest Paid(Net of Capitalization)		($638,105)	($638,105)		($638,105)	
Cash Paid for [illegible]	ASN 3		($5,299,886)		($5,299,886)	
Holding and Use Fees - [illegible] Properties	ASN 4		($28,000)		($28,000)	
Holding and Use Fees - Non-Producing Properties	ASN 4		($510,300)		($510,300)	
Net Cash Provided(Used In) by Operating Activities		$661,337	($5,657,547)	-955.47%	($5,923,106)	-995.63%

ASN = See Assumptions Used in the

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Schedule 6 Company A Pro-Forma Statement of Cash Flows		Fiscal 1988 Under Mining Law of 1872	Case 1 Fiscal 1988 Under Mining Law of 1989	Case 1 % Change Under Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Under Mining Law of 1989
Cash Flows from Operating Activities						
Cash Received from sales of precious metals		$4,103,379	$4,103,379		$4,103,379	
Royalties Received		$91,383	$91,383		$91,383	
Interest Received		$134,317	$134,317		$134,317	
Cash paid to suppliers and employees		($3,940,251)	($3,940,251)		($3,940,251)	
Federal Royalties Paid			($229,885)		$356,883	
Income taxes						
Interest Paid(Net of Capitalization)		($302,625)	($302,625)		($302,625)	
Cash Paid for Minimum Diligence Adjustment	ASN 3		($5,173,580)		($5,173,580)	
Holding and Use Fees - Producing Properties	ASN 4		($28,000)		($28,000)	
Holding and Use Fees - Non-Producing Properties	ASN 4		($510,300)		($510,300)	
Net Cash Provided(Used In) by Operating Activities		$86,203	($5,855,562)	-6892.76%	($5,268,794)	-6212.08%

ASN = See Assumptions Used in the

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Schedule 7 Company A Cost Comparisons Per Ounce of Gold Produced		Fiscal 1990 Under Mining Law Of 1872	Case 1 Fiscal 1990 Under Mining Law Of 1989	Fiscal 1989 Under Mining Law Of 1872	Case 1 Fiscal 1989 Under Mining Law Of 1989	Fiscal 1988 Under Mining Law Of 1872	Case 1 Fiscal 1988 Under Mining Law Of 1989
Cash Cost per Ounce of Gold Produced	ASN 5a	$267	$287	$237	$261	$225	$251
Total Cost per Ounce of Gold Produced (including cash costs)	ASN 5b	$364	$384	$329	$353	$267	$293
Exploration/Finding Cost per Ounce of Gold Produced	ASN 5c	$11	$185	$62	$337	$45	$622
Total Cost per Ounce of Gold Produced (including exploration/finding cost)		$375	$569	$391	$690	$312	$915

Average Sales Price per Ounce of Gold Sold	$381	$381	$441	$441	$452	$452
Average COMEX Price	$382	$382	$437	$437	$447	$447

Note: Per the Goldfields Study the United States average cash cost per ounce of gold was $209 in 1989.

ASN = See Assumptions Used in the
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[illegible]	[illegible]	[illegible]	[illegible]	Acres	ASN 1 Years Held	Diligence Per Acre 1	[illegible] Diligence	[illegible] Acre	[illegible] Paid	[illegible]	[illegible]
Property #1	206	$100	$20,600	4,120	1-5	$50	$206,000	$5		$100	$20,600
Property #2	47	$100	$4,700	940	5-10	$100	$94,000	$5		$100	$4,700
Property #3	124	$100	$12,400	2,480	5-10	$100	$248,000	$5		$100	$12,400
Property #4	484	$100	$48,400	9,680	1-5	$50	$484,000	$5		$100	$48,400
Property #5	377	$100	$37,700	7,540	1-5	$50	$377,000	$5		$100	$37,700
Property #6	80	$100	$8,000	1,600	1-5	$50	$80,000	$5		$100	$8,000
Property #7	381	$100	$38,100	7,620	1-5	$50	$381,000	$5		$100	$38,100
Property #8	101	$100	$10,100	2,020	5-10	$100	$202,000	$5		$100	$10,100
Property #9	40	$100	$4,000	800	5-10	$100	$80,000	$5		$100	$4,000
Property #10	10	$100	$1,000	200	5-10	$100	$20,000	$5		$100	$1,000
Property #11	18	$100	$1,800	360	5-10	$100	$36,000	$5		$100	$1,800
Property #12	4	$100	$400	80	5-10	$100	$8,000	$5		$100	$400
Property #13	155	$100	$15,500	3,100	5-10	$100	$310,000	$5		$100	$15,500
Property #14	90	$100	$9,000	1,800	1-5	$50	$90,000	$5		$100	$9,000
Property #15	199	$100	$19,900	3,980	1-5	$50	$199,000	$5		$100	$19,900
Property #16	156	$100	$15,600	3,120	1-5	$50	$156,000	$5		$100	$15,600
Property #17	108	$100	$10,800	2,160	1-5	$50	$108,000	$5		$100	$10,800
Property #18	20	$100	$2,000	400	1-5	$50	$20,000	$5		$100	$2,000
Property #19 Producing	140	$100	$14,000	2,800	1-5	$50		$5	$14,000	$100	$14,000
Property #19	696	$100	$69,600	13,920	1-5	$50	$696,000	$5		$100	$69,600
Property #20	1807	$100	$180,700	36,140	1-5	$50	$1,807,000	$5		$100	$180,700
Totals	5,243		$524,300	104,860			$5,602,000		$14,000		$524,300

ASN = See Assumptions Used in
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Company A - Assumptions Used in Pro-Forma Presentation

Case 1 restates historical data under the Mining Law of 1989. Case 2 restates historical data under the Mining Law of 1989 and further assumes that all domestic mineral sales are from unpatented mining claims. In the preparation of Company A's Pro-Forma Presentation under the proposed Mining Law of 1989, the following additional assumptions were made for Case 1 and Case 2:

1. As of Fiscal 1990, Company A controlled 5,243 unpatented lode mining claims. Due to the number of claims and time constraints it was not feasible for Company A's management to determine the precise acquisition date for each claim. However, Company A was able to determine that each of its claims had been held for either 1 - 5 or 5 - 10 years, for the purpose of computing diligence fees under the proposed Mining Law of 1989. It was assumed that all claims were acquired before Fiscal 1988.

2. The $100 per claim recording fee (under the proposed Mining Law of 1989) was not included in the Pro-Forma Income Statements It was assumed that recording fees, in the amount of $524,300, were incurred prior to 1988.

3. The Minimum Diligence Requirement Adjustment line on each Pro-Forma Income Statement for Company A was calculated by deducting exploration costs actually incurred under the Mining Law of 1872 (from the Pro-Forma Income Statements of Company A) from the amount of diligence costs expected to be incurred under the proposed Mining Law of 1989 (as calculated in the table of Diligence and Holding Costs) as follows:

a.	1990 - Mining Law of 1989	$5,602,000
	1990 - Mining Law of 1872	241,618
		$5,360,382
b.	1989 - Mining Law of 1989	$5,602,000
	1989 - Mining Law of 1872	302,114
		$5,299,886
c.	1988 - Mining Law of 1989	$5,602,000
	1988 - Mining Law of 1872	428,420
		$5,173,580

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Company A - Assumptions Used in Pro-Forma Presentation

4. The Holding and Use Fee adjustment on each of the Company A's Pro-Forma Income Statements was calculated from the table of Diligence and Holding Fees as follows:

1990 - Non-Producing Properties	= $510,300
1990 - Producing Properties	$ 28,000
	$538,300

Note: The same calculation was used for all fiscal years.

5. For purposes of calculating the Cost Comparisons per Ounce of Gold Produced for Company A, the following assumptions were made:

   a. Cash Costs per Ounce of Gold Produced under the proposed Mining Law of 1989 were calculated by dividing the number of ounces of gold produced in each year by the Federal Royalties and Holding and Use Fees expected to be incurred during that year and adding that cost per ounce to the Cash Cost per Ounce of Gold Produced under the Mining Law of 1872.

   b. Total Costs per Ounce of Gold Produced under the proposed Mining Law of 1989 were calculated by adding the Federal Royalties and Holding and Use Fees Producing Properties cost per ounce (calculated in 5(a) above) to the Total Cost per Ounce of Gold Produced under the Mining Law of 1872.

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Company A - Assumptions Used in Pro-Forma Presentation

5. c. **Exploration/Finding Costs per Ounce of Gold Produced were calculated using the following assumptions for Company A:**

i. **In 1990 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:**

Exploration Costs	**$241,618**
Royalties on Nonproducing Properties	41,805
Abandonment of Properties	88,793
	$372,216
Ounces of Gold Produced	33,722
Exploration/Finding Cost per Ounce of Gold Produced	$11.04

ii. In 1989 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Cost	$ 302,114
Royalties on Nonproducing Properties	70,800
Abandonment of Properties	133,446
Writedowns of Nonproducing mining properties	800,000
	$1,306,360
Ounces of Gold Produced	**21,137**
Exploration/Finding Cost Per Ounce of Gold Produced	**$61.80**

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Company A - Assumptions Used in Pro-Forma Presentation

iii. In 1988 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Cost	$428,420
Royalties on Nonproducing Properties	20,000
	$448,420
Ounces of Gold Produced	9,860
Exploration/Finding Cost Per Ounce of Gold Produced	$45.48

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Company A - Assumptions Used in Pro-Forma Presentation

iv. In 1990 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Amounts calculated for 1990 under the Mining Law of 1872	$ 372,216
Minimum Diligence Adjustment	5,360,382
Holding and Use Fees Non-Producing Properties	510,300
	$6,242,898
Ounces of Gold Produced	33,722
Exploration/Finding Cost Per Ounce of Gold Produced	$185.15

v. In 1989 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Amounts calculated for 1989 under the Mining Law of 1872	$1,306,360
Minimum Diligence Adjustment	5,299,886
Holding and Use Fees Non-Producing Properties	510,300
	$7,116,546
Ounces of Gold Produced	21,137
Exploration/Finding Cost Per Ounce of Gold Produced	$336.68

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Company A - Assumptions Used in Pro-Forma Presentation

vi. In 1988 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Amounts calculated for 1988 under the Mining Law of 1872	$ 448,420
Minimum Diligence Adjustment	5,173,580
Holding and Use Fees Non-Producing Properties	510,300

	$6,132,300
Ounces of Gold Produced	9,860
Exploration/Finding Cost Per Ounce of Gold Produced	$621.93

6. Costs Not Included in the Pro-Forma Analysis of Company A:

a. Under the proposed Mining Law of 1989, mining companies will be required to backfill mine sites to their original condition. The cost of backfilling Company A's mine sites was not included in this Pro-Forma Analysis.

b. In preparing Company A's Pro-Forma Income Statements under the proposed Mining Law of 1989, the most recent mineral reserve report data was used. Under the proposed Mining Law of 1989, the reserve report data would be recalculated using the current cost assumptions of the new law. The effect of the proposed law would be to increase the cutoff sales price and cutoff ore grade of Company A's reserves. The increased cutoff amounts would have entered into Company A's decision to develop its mines, and such mines may not have been economically feasible to operate.

Exhibit B to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S.1126 on September 13, 1990.

Company B
Background Information

Company B is engaged in the identification of, acquisition of and exploration for precious metals mineral properties and in developing and placing such properties into production. Company B's mineral rights and producing mineral properties are located in Colorado, Nevada and Washington.

Company B employed approximately 1,500 employees as of December 31, 1989.

Exhibit B to Statement of Stephen D. Alfers before the
Mineral Resources Development and Production Subcommittee
of the Committee on Energy and Natural Resources regarding
S. 1126 on September 13, 1990

[illegible]	Fiscal 1989 Under Mining Law of 1872	Case 1 Fiscal 1989 Under Mining Law of 1989	Case 1 % Change Fiscal 1989 Under Mining Law of 1989	Case 2 Fiscal 1989 Under Mining Law of 1989	Case 2 % Change Fiscal 1989 Under Mining Law of 1989
Revenues	$297,003,000	$297,003,000		$297,003,000	
Expenses:					
Operating Costs	$164,325,000	$164,325,000		$164,325,000	
Depreciation	$34,233,000	$34,233,000		$34,233,000	
Amortization	$20,761,000	$20,761,000		$20,761,000	
Royalties	$7,497,000	$7,497,000		$7,497,000	
[illegible] ASN 5		$12,255,793		$17,384,720	
[illegible] ASN 4		$1,994,285		$1,994,285	
Total Costs Applicable to Sales	$226,816,000	$240,566,078	6.06%	$245,695,005	8.
Gross Operating Margin	$70,187,000	$56,436,922	-19.59%	$51,307,995	-26.
Exploration	($12,079,000)	($12,079,000)		($12,079,000)	
General and Administrative	($10,108,000)	($10,108,000)		($10,108,000)	
Holding and Use Fees [illegible] ASN 4		($869,600)		($869,600)	
[illegible] ASN 3					
Income from Operations	$48,000,000	$33,380,322	-30.46%	$28,251,395	-41.
Other Adjustments	($26,237,000)	($26,237,000)		($26,237,000)	
Income and Mining Taxes	($5,743,000)	($1,885,837)		($511,800)	
Net Income	$16,020,000	$5,257,485	-67.18%	$1,482,595	-90.

Earnings Per Share	$0.16	$0.05		$0.01	
High Stock Price	$20	$7		$2	
Low Stock Price	$13	$4		$1	
Price Earnings - High Stock Price	126	126		126	
Price Earnings - Low Stock Price	80	80		80	

ASN = See Assumptions Used in the
Pro-Forma Presentation at
B-10 - B-15

Exhibit B to Statement of Stephen D. Alfers before the
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[redacted]	Fiscal 1988 Under Mining Law of 1872	[redacted]	[redacted]	[redacted]	[redacted]
Revenue	$267,666,000	$267,666,000		$267,666,000	
Expenses:					
Operating Costs	$134,695,000	$134,695,000		$134,695,000	
Depreciation	$20,969,000	$20,969,000		$20,969,000	
Amortization	$18,959,000	$18,959,000		$18,959,000	
Royalties	$7,861,000	$7,861,000		$7,861,000	
[redacted]		[redacted]		[redacted]	
Total Costs Applicable to Sales	$182,484,000	$193,366,579	[redacted]	$197,901,885	[redacted]
Gross Operating Margin	$85,182,000	$74,299,421	[redacted]	$69,764,115	[redacted]
Exploration	($18,742,000)	($18,742,000)		($18,742,000)	
General and Administrative	($9,651,000)	($9,651,000)		($9,651,000)	
[redacted]		[redacted]		[redacted]	
Minimum Diligence Requirement Adjustment ASN 3					
Income from Operations	$56,789,000	$45,036,821	[redacted]	$40,501,515	[redacted]
Other Adjustments	$13,609,000	$13,609,000		$13,609,000	
Income and Mining Taxes	($15,972,000)	($13,215,560)		($12,283,086)	
Net Income	$54,426,000	$45,430,261	[redacted]	$41,827,429	[redacted]

Earnings Per Share	$0.56	[redacted]		[redacted]	
High Stock Price	$24	[redacted]		[redacted]	
Low Stock Price	$13	[redacted]		[redacted]	
Price Earnings - High Stock Price	43	43		43	
Price Earnings - Low Stock Price	23	23		23	

ASN = See Assumptions Used in the
Pro-Forma Presentation at
B-10 - B-15

Exhibit B to Statement of Stephen D. Alfers before the
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Schedule 3 Company B Pro-Forma Income Statement		Fiscal 1987 Under Mining Law of 1872	Case 1 Fiscal 1987 Under Mining Law of 1989	Case 1 % Change Fiscal 1987 Under Mining Law of 1989	Case 2 Fiscal 1987 Under Mining Law of 1989	Case 2 % Change Fiscal 1987 Under Mining Law of 1989
Revenue		$211,678,000	$211,678,000		$211,678,000	
Expenses:						
Operating Costs		$101,024,000	$101,024,000		$101,024,000	
Depreciation		$11,839,000	$11,839,000		$11,839,000	
Amortization		$11,042,000	$11,042,000		$11,042,000	
Royalties		$7,602,000	$7,602,000		$7,602,000	
Federal Royalties	ASN 5		$5,742,512		$10,377,440	
Holding and Use Fees Producing Properties	ASN 4		$1,494,285		$1,494,285	
Total Costs Applicable to Sales		$131,507,000	$138,743,797	5.50%	$143,378,725	9.0
Gross Operating Margin		$80,171,000	$72,934,203	-9.03%	$68,299,275	-14.
Exploration		($8,674,000)	($8,674,000)		($8,674,000)	
General and Administrative		($8,289,000)	($8,289,000)		($8,289,000)	
Holding and Use Fees Non-Producing Properties	ASN 4		[illegible]		($869,600)	
Minimum Diligence Requirement Adjustment	ASN 3					
Income from Operations		$63,208,000	$55,101,603	[illegible]	$50,466,675	-20.
Other Adjustments		($857,000)	($857,000)		($857,000)	
Income and Mining Taxes		($13,877,000)	($11,745,695)		($11,062,957)	
Net Income		$48,474,000	$42,498,908	-12.33%	$38,546,718	-20.

Earnings Per Share	$0.52	[illegible]		$0.40	
High Stock Price	$20	[illegible]		$15	
Low Stock Price	$13	[illegible]		$10	
Price Earnings - High Stock Price	39	39		39	
Price Earnings - Low Stock Price	25	25		25	

ASN = See Assumptions Used in the
Pro-Forma Presentation at
B-10 - B-15 .

Exhibit B to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S. 1126 on September 13, 1990

[illegible]	Fiscal 1989 Under Mining Law of 1872	Case 1 Fiscal 1989 Under Mining Law of 1989	Case 1 % Change Fiscal 1989 Under Mining Law of 1989	Case 2 Fiscal 1989 Under Mining Law of 1989	Case 2 % Change Fiscal 1989 Under Mining Law of 1989
Cash Provided by (Used in):					
Operating Activities					
Net Earnings	$16,020,000	$5,257,485		$1,482,595	
Add items not affecting working capital	$80,077,000	$80,077,000		$80,077,000	
Working Capital provided from operations	$96,097,000	$85,334,485		$81,559,595	
Decrease(increase) in cash invested in working capital related to operations	($15,498,000)	($15,498,000)		($15,498,000)	
Cash Provided by (Used in) operating Activities	$80,599,000	$69,836,485	-13.35%	$66,061,595	[illegible].04%

Exhibit B to Statement of Stephen D. Alfers before the
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of the Committee on Energy and Natural Resources regarding
S. 1126 on September 13, 1990

Schedule 5 Company B Pro-Forma Statement of Cash Flows	Fiscal 1988 Under Mining Law of 1872	Case 1 Fiscal 1988 Under Mining Law of 1989	Case 1 % Change Fiscal 1988 Under Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Fiscal 1988 Under Mining Law of 1989
Cash Provided by (Used in):					
Operating Activities					
Net Earnings	$54,426,000	$45,430,261		$41,827,429	
Add items not affecting working capital	$31,971,000	$31,971,000		$31,971,000	
Working Capital provided from operations	$86,397,000	$77,401,261		$73,798,429	
Decrease(increase) in cash invested in working capital related to operations	($6,714,000)	($6,714,000)		($6,714,000)	
Cash Provided by (Used in) operating Activities	$79,683,000	$70,687,261	-11.29%	$67,084,429	-15.81%

Exhibit B to Statement of Stephen D. Alfers before the
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[illegible]	Fiscal 1987 Under Mining Law of 1872	Case 1 Fiscal 1987 Under Mining Law of 1989	Case 1 % Change Fiscal 1987 Under Mining Law of 1989	Case 2 Fiscal 1987 Under Mining Law of [illegible]	Case 2 % Change Fiscal 1987 Under Mining Law of 1989
Cash Provided by (Used in):					
Operating Activities					
Net Earnings	$48,474,000	$42,498,908		$38,546,718	
Add items not affecting working capital	$31,971,000	$31,971,000		$31,971,000	
Working Capital provided from operations	$80,445,000	$74,469,908		$70,517,718	
Decrease(increase) in cash invested in working capital related to operations	($6,714,000)	($6,714,000)		($6,714,000)	
Cash Provided by (Used in) operating Activities	$73,731,000	$67,755,908	-8.10%	$63,803,718	-13.46%

Exhibit B to Statement of Stephen D. Alfers before the
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of the Committee on Energy and Natural Resources regarding
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Schedule 7 Company B Cost Components Per Ounce of Gold Produced		Fiscal 1989 Under Mining Law Of 1872	[illegible] Under [illegible]	Fiscal 1988 Under Mining Law Of 1872	Fiscal 1988 Under Mining Law Of 1989	Fiscal 1987 Under Mining Law Of 1872	Fiscal 1987 Under Mining Law Of 1989
Cash Cost per Ounce of Gold Produced	ASN 6a	$243	[illegible]	$241	$259	$238	[illegible]
Total Cost per Ounce of Gold Produced (including cash costs)	ASN 6b	$318	$337	$307	$325	$283	$297
Exploration/Finding Cost per Ounce of Gold Produced	ASN 6c	$16	[illegible]	$31	[illegible]	$17	[illegible]
Total Cost per Ounce of Gold Produced (inlcuding exploration/finding cost)		$334	[illegible]	$338	[illegible]	$300	[illegible]
Average Sales Price per Ounce of Gold Sold		$400	$400	$440	$440	$439	$439
Average COMEX Price		$382	$382	$437	$437	$447	$447

Note: Per the Goldfields Study the United States average cash cost per ounce of gold was $209 in 1989.

ASN = See Assumptions Used in the
Pro-Forma Presentation at
B-10 - B-15 .

Exhibit B to Statement of Stephen D. Alfers before the
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[illegible]	[illegible] Claims	Recording [illegible] Claim	ASN [illegible]	[illegible] Acres	ASN 1 Years Held	Diligence Fee Per Acre	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Non-Producing Unpatented Properties	8,696	$100	$869,600	169,720	1-5	$50	$8,486,000	$5		$100	$869,600
Unpatented Producing Properties											
Unpatented Producing Property #1	1,638	$100	$163,800	23,192	1-5	$50		$5	$115,960	$100	$163,800
Unpatented Producing Property #2	3,420	$100	$342,000	70,709	1-5	$50		$5	$353,545	$100	$342,000
Unpatented Producing Property #3	2,238	$100	$223,800	42,820	1-5	$50		$5	$214,100	$100	$223,800
Unpatented Producing Property #4	404	$100	$40,400	8,136	1-5	$50		$5	$40,680	$100	$40,400
Unpatented Producing Property #5	0	$100	$0	0	1-5	$50		$5	$0	$100	$0
Unpatented Producing Property #6	0										
Unpatented Producing Property #7	0										
Totals	16,396		1,639,600	314,577			$8,486,000		$724,285		$1,639,600

ASN = See Assumptions Used in the Pro-Forma Presentation at B-10 – B-15.

Exhibit B to Statement of Stephen D. Alfers before the
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Company B - Assumptions Used in Pro-Forma Presentation

Case 1 restates historical data under the Mining Law of 1989. Case 2 restates historical data under the Mining Law of 1989 and further assumes that all domestic mineral sales are from unpatented mining claims. In the preparation of Company B's Pro-Forma Presentation under the proposed Mining Law of 1989, the following additional assumptions were made for Case 1 and Case 2:

1. As of Fiscal 1990, Company B controlled 16,396 unpatented lode mining claims. Due to the number of claims and time constraints it was not feasible for Company B's management to determine the precise acquisition date for each claim. However, Company B was able to determine that each of its claims had been held for 1 - 5 years, for the purpose of computing diligence fees under the proposed Mining Law of 1989. It was assumed that all claims were acquired before Fiscal 1987.

2. The $100 per claim recording fee (under the proposed Mining Law of 1989) was not included in the Pro-Forma Income Statements It was assumed that recording fees, in the amount of $1,639,600 were incurred prior to Fiscal 1987.

3. The Minimum Diligence Requirement Adjustment was not required for Company B in 1989, 1988 and 1987 since actual exploration costs incurred under the Mining Law of 1872 (from the Pro-Forma Income Statements of Company B) were in excess of the minimum diligence requirement under the proposed Mining Law of 1989.

4. The Holding and Use Fee adjustment on each of the Company A's Pro-Forma Income Statements was calculated from the table of Minimum Diligence, Holding and Use Fees as follows:

1989 - Non-Producing Properties	= $ 869,600
1989 - Producing Properties	$1,494,285

	$2,364,425
	=========

Note: The same calculation was used for all fiscal years.

5. Company B was able to provide the domestic revenue amounts relating to unpatented production, the 8% Federal Royalty was calculated on these amounts.

Exhibit B to Statement of Stephen D. Alfers before the
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Company B - Assumptions Used in Pro-Forma Presentation

6. For purposes of calculating the Cost Comparisons per Ounce of Gold Produced for Company B, the following assumptions were made:

   a. Cash Costs per Ounce of Gold Produced under the proposed Mining Law of 1989 were calculated by dividing the number of ounces of gold produced in each year by the Federal Royalties and Holding and Use Fees - Producing Properties expected to be incurred during that year and adding that cost per ounce to the Cash Cost per Ounce of Gold Produced under the Mining Law of 1872.

   b. Total Costs per Ounce of Gold Produced under the proposed Mining Law of 1989 were calculated by adding the Federal Royalties and Holding and Use Fees Producing Properties cost per ounce (calculated in 5(a) above) to the Total Cost per Ounce of Gold Produced under the Mining Law of 1872.

   c. Exploration/Finding Costs per Ounce of Gold Produced were calculated using the following assumptions for Company A:

Exhibit B to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S. 1126 on September 13, 1990.

Company B - Assumptions Used in Pro-Forma Presentation

i. In 1989 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Costs	$12,079,000
Ounces of Gold Produced	750,800
Exploration/Finding Cost per Ounce of Gold Produced	$16.08

ii. In 1988 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Costs	$18,742,000
Ounces of Gold Produced	600,100
Exploration/Finding Cost per Ounce of Gold Produced	$31.23

iii. In 1987 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Costs	$8,674,000
Ounces of Gold Produced	507,400
Exploration/Finding Cost per Ounce of Gold Produced	$17.09

Exhibit B to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S. 1126 on September 13, 1990

Company B - Assumptions Used in Pro-Forma Presentation

iv. In 1989 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Amounts calculated for 1989 under the Mining Law of 1872	$12,079,000
Holding and Use Fees Non-Producing Properties	869,600
	$12,948,600
Ounces of Gold Produced	750,800
Exploration/Finding Cost Per Ounce of Gold Produced	$17.24

v. In 1988 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Amounts calculated for 1988 under the Mining Law of 1872	$18,742,000
Holding and Use Fees - Non-Producing Properties	869,600
	$19,611,600
Ounces of Gold Produced	600,100
Exploration/Finding Cost per Ounce of Gold Produced	$32.68

Exhibit B to Statement of Stephen D. Alfers before the
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Company B - Assumptions Used in Pro-Forma Presentation

vi. In 1987 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Cost per Ounce of Gold Produced:

Amount calculated for 1987 under the Mining Law of 1872	$8,674,000
Holding and Use Fees - Non-Producing Properties	869,600
	$9,543,600
Ounces of Gold Produced	507,400
Exploration/Finding Cost per Ounce of Gold Produced	$18.80

7. Costs Not Included in the Pro-Forma Analysis of Company B:

   a. Under the proposed Mining Law of 1989, mining companies will be required to backfill mine sites to their original condition. The cost of backfilling Company B's mine sites was not included in this Pro-Forma Analysis.

   b. In preparing Company B's Pro-Forma Income Statements under the proposed Mining Law of 1989, the most recent mineral reserve report data was used. Under the proposed Mining Law of 1989, the reserve report data would be recalculated using the current cost assumptions of the new law. The effect of the proposed law would be to increase the cutoff sales price and cutoff ore grade of Company B's reserves. The increased cutoff amounts would have entered into Company B's decision to develop its mines, and such mines may not have been economically feasible to operate.

8. On the Pro-Forma Income Statements (calculated under the proposed Mining Law of 1989), the following assumption was made regarding income taxes:
   Federal Royalties were considered to be deductible for purposes of calculating Company B's income tax expense for each of the three fiscal years. The income tax expense on the Pro-Forma Income Statements (calculated under the proposed Mining Law of 1989) uses the same effective tax rate as income tax expense (calculated under the Mining Law of 1872).

Exhibit C to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S. 1126 on September 13, 1990.

Company C
Background Information

Company C was established in 1987. Company C is engaged in the identification of, acquisition of and exploration for precious metals mineral properties and in developing and placing such properties into production. Company C's mineral rights include mineral properties in California, Idaho, Montana, Nevada and Oregon.

Company C's producing properties are in the State of Nevada. Company C employed 337 people in the State of Nevada and 84 people in the State of Colorado as of December 31, 1989. Cash expenditures in the State of Nevada are as follows:

Fiscal 1989	$48,000,000
Fiscal 1988	$46,000,000
Fiscal 1987	$22,000,000

Cash expenditures include mine site operating and capital expenditures, including payroll amounts.

Exhibit C to Statement of Stephen D. Alfers before the
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S. 1126 on September 13, 1990.

Schedule 1 Company C Pro-Forma Income Statement		Fiscal 1989 Under Mining Law of 1872	[illegible]	[illegible]	Case 2 Fiscal 1989 Under Mining [illegible]	[illegible] Change Under Proposed Mining [illegible]
Sales of Precious Metals		$121,600,000	$121,600,000		Same as Case 1	Same as Case 1
Operating Costs and Expenses:						
Costs of Mining and Processing		$37,800,000	$37,800,000			
Depreciation and Depletion		$18,100,000	$18,100,000			
Federal Royalties			[illegible]			
Holding and Use Fees - Producing Properties	ASN 4		[illegible]			
General and Administrative		$6,300,000	$6,300,000			
Total Costs Applicable to Sales		$62,200,000	$71,180,600	14.44%		
Gross Operating Margin		$59,400,000	$50,419,400	-15.12%		
Exploration		$12,100,000	$12,100,000			
Minimum Diligence Requirement Adjustment	ASN 3		$337,341			
Recording Fees	ASN 2		$126,400			
Holding Fees - Non-Producing Properties	ASN 4		$650,400			
Income from Operations		$47,300,000	$37,205,259	-22.34%		
Other Adjustments (primarily loss in equity investment)		($2,900,000)	($2,900,000)			
Income Taxes	ASN 7	($11,100,000)	($6,964,824)			
Net Income		$33,300,000	$27,340,435	-17.90%		

Earnings Per Share	$0.55	$0.46	-17.15%
High Stock Price	$19.50	$16.16	-17.15%
Low Stock Price	$12.00	$9.94	-17.15%
Price Earnings Ratio - High Stock Price	35	35	
Price Earnings Ratio - Low Stock Price	22	22	

ASN = See Assumptions Used in
Pro-Forma Presentation
Pages C-11 - C-16.

Exhibit C to Statement of Stephen D. Alfers before the
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Schedule 2 Company C Pro-Forma Income Statement		Fiscal 1988 Under Mining Law of 1872	Case 1 Fiscal 1988 Under Mining Law of 1989	Case 1 % Change Under Proposed Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Under Proposed Mining Law of 1989
Sales of Precious Metals		$104,400,000	$104,400,000		Same as Case 1	Same as Case 1
Operating Costs and Expenses:						
Costs of Mining and Processing		$25,400,000	$25,400,000			
Depreciation and Depletion		$9,200,000	$9,200,000			
Federal Royalties			$7,960,000			
Holding and Use Fees - Producing Properties	ASN 4		$2,800			
General and Administrative		$3,600,000	$3,600,000			
Total Costs Applicable to Sales		$38,200,000	$46,162,800	20.85%		
Gross Operating Margin		$66,200,000	$58,237,200	-12.03%		
Exploration		$10,800,000	$10,800,000			
Minimum Diligence Requirement Adjustment	ASN 3					
Recording Fees	ASN 2		$134,700			
Holding Fees Non-Producing Properties	ASN 4		$524,400			
Income from Operations		$55,400,000	$46,778,100	-15.56%		
Other Adjustments (primarily loss in equity investment)		($11,000,000)	($11,000,000)			
Income Taxes	ASN 7	($1,400,000)	($1,355,343)			
Net Income		$43,000,000	$34,422,757	-19.95%		

Earnings Per Share	$0.72	$0.57	-20.32%
High Stock Price	$18.88	$15.04	-20.32%
Low Stock Price	$11.75	$9.36	-20.32%
Price Earnings Ratio - High Stock Price	26	26	
Price Earnings Ratio - Low Stock Price	16	16	

ASN = See Assumptions Used in the
Pro-Forma Presentation Pages C-11 - C-16.

Exhibit C to Statement of Stephen D. Alfers before the
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[redacted]		Fiscal 1987 Under Mining Law of 1872	[redacted]	[redacted]	[redacted]	[redacted]
Sales of Precious Metals		$67,000,000	$67,000,000		Same as Case 1	Same as Case 1
Operating Costs and Expenses:						
Costs of Mining and Processing		$12,500,000	$12,500,000			
Depreciation and Depletion		$4,600,000	$4,600,000			
[redacted]			[redacted]			
Holding and Use Fees - Producing Properties	ASN 4		[redacted]			
General and Administrative		$2,900,000	$2,900,000			
Total Costs Applicable to Sales		$20,000,000	$25,362,800	26.81%		
Gross Operating Margin		$47,000,000	$41,637,200	-11.41%		
Exploration		$5,000,000	$5,000,000			
Minimum Diligence Requirement Adjustment	ASN 3					
Recording Fees	ASN 2		$391,100			
Holding Fees Non-Producing Properties	ASN 4		$389,700			
Income (Loss) from Operations		$42,000,000	$35,856,400	-14.63%		
Other Adjustments (primarily loss in equity investment)		($1,300,000)	($1,300,000)			
Income Taxes	ASN 7	($300,000)	($300,000)			
Net Income		$40,400,000	$34,256,400	-15.21%		

Earnings Per Share	$0.67	$0.57	-14.79%
High Stock Price	$20.92	$17.85	-14.79%
Low Stock Price	$9.33	$7.95	-14.79%
Price Earnings Ratio - High Stock Price	31	31	
Price Earnings Ratio - Low Stock Price	14	14	

ASN = See Assumptions Used in the
Pro-Forma Presentation Pages C-11 - C-16.

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Schedule 4 **Company C** **Pro-Forma Statement of Cash Flows**	Fiscal 1989 Under Mining Law of 1872	*Case 1* **Fiscal 1989 Under Mining Law of 1989**	**Case 1 % Change Under Mining Law of 1989**	**Case 2 Fiscal 1989 Under Mining Law of 1989**	**Case 2 % Change Under Mining Law of 1989**
				Same as Case 1	Same as Case 1
Cash Flows from Operating Activities					
Net Earnings	$33,300,000	$23,205,259			
Adjustments to reconcile net earnings to net cash provided by operations:					
Depreciation and Depletion	$18,100,000	$18,100,000			
Other, net	($1,900,000)	($1,900,000)			
Net Cash Provided by Operating Activities	$49,500,000	$39,405,259	-20.39%		

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Schedule 5 Company C Pro-Forma Statement of Cash Flows	Fiscal 1988 Under Mining Law of 1872	Case 1 Fiscal 1988 Under Mining Law of 1989	Case 1 % Change Under Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Under Mining Law of 1989
				Same as Case 1	Same as Case 1
Cash Flows from Operating Activities					
Net Earnings	$43,000,000	$34,378,100			
Adjustments to reconcile net earnings to net cash provided by operations:					
Depreciation and Depletion	$9,200,000	$9,200,000			
Other, net	$15,800,000	$15,800,000			
Net Cash Provided by Operating Activities	$68,000,000	$59,378,100	-12.68%		

Exhibit C to Statement of Stephen D. Alfers before the
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Schedule 6 Company C Pro-Forma Statement of Cash Flows	Fiscal 1987 Under Mining Law of 1872	Case 1 Fiscal 1987 Under Mining Law of 1989	Case 1 % Change Under Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Under Mining Law of 1989
				Same as Case 1	Same as Case 1
Cash Flows from Operating Activities					
Net Earnings	$40,400,000	$34,256,400			
Adjustments to reconcile net earnings to net cash provided by operations:					
Depreciation and Depletion	$4,600,000	$4,600,000			
Other, net	$5,700,000	$5,700,000			
Net Cash Provided by Operating Activities	$50,700,000	$44,556,400	-12.12%		

Exhibit C to Statement of Stephen D. Alfers before the
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Schedule 7 Company C Cost Comparisons Per Ounce of Gold Produced		Fiscal 1989 Under Mining Law Of 1872	Case 1 Fiscal 1989 Under Mining Law Of 1989	Fiscal 1988 Under Mining Law Of 1872	Case 1 Fiscal 1988 Under Mining Law Of 1989	Fiscal 1987 Under Mining Law Of 1872	Case 1 Fiscal 1987 Under Mining Law Of 1989
Cash Cost per Ounce of Gold Produced	ASN 5a	$132	$161	$110	$143	$74	$108
Total Cost per Ounce of Gold Produced (including cash costs)	ASN 5b	$191	$220	$148	$181	$103	$137
Exploration/Finding Cost per Ounce of Gold Produced	ASN 5c	$40	$43	$45	$48	$31	$36
Total Cost per Ounce of Gold Produced (including exploration/finding cost)		$231	$263	$193	$229	$134	$173
Average Sales Price per Ounce of Gold Sold		$411	$411	$448	$448	$419	$419
Average COMEX Price		$382	$382	$437	$437	$447	$447

Note: Per the Goldfields Study the United States average cash cost per ounce of gold was $209
ASN = See Assumptions Used
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Schedule 8			ASN 2		ASN 1				ASN 4		ASN 4
[illegible] Holding and Use Fees [illegible] of 1990	# of Unpatented Claims	Recording Fee Per Claim	Recording Fee	Acres	Years Held	Diligence Fee Per Acre	Total Diligence	Surface Fee = Per Acre	Surface Fee	[illegible]	[illegible]
Fiscal 1989											
Non-Producing Unpatented Properties	6,499	$100	$649,900	129,980	1-5	$50	$6,499,000	$5		$100	$649,900
Producing Unpatented Property 1	9	$100	$900	180	1-5	$50		$5	$900	$100	$900
Producing Unpatented Property 2	14	$100	$1,400	280	1-5	$50		$5	$1,400	$100	$1,400
Totals	6,522		$652,200	130,440			$6,499,000		$2,300		$652,200
Fiscal 1988											
Non-Producing Unpatented Properties	5,244	$100	$524,400	99,560	1-5	$50	$4,978,000	$5		$100	$524,400
Producing Unpatented Property 1	0	$100	$0	0	0	$50		$5		$100	$0
Producing Unpatented Property 2	14	$100	$1,400	280	1-5	$50		$5	$1,400	$100	$1,400
Totals	5,258		$525,800	99,840			$4,978,000		$1,400		$525,800
Fiscal 1987											
Non-Producing Unpatented Properties	3,897	$100	$389,700	76,260	1-5	$50	$3,813,000	$5		$100	$389,700
Producing Unpatented Property 1	0	$100	$0	0	0	$50		$5		$100	$0
Producing Unpatented Property 2	14	$100	$1,400	280	1-5	$50		$5	$1,400	$100	$1,400
Totals	3,911		$391,100	76,540			$3,813,000		$1,400		$391,100

ASN = See Assumptions Used in
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**Exhibit C to Statement of Stephen D. Alfers before the
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Schedule 9 Company C Property 1 Stand Alone Analysis Pro-Forma Income Statement		Fiscal 1989 Under Mining Law of 1872	Case 1 Fiscal 1989 Under Mining Law of 1989	Case 1 % Change Under Proposed Mining Law of 1989
Sales of Precious Metals		$9,401,000	$9,401,000	
Operating Costs and Expenses:				
Costs of Mining and Processing		$5,573,000	$5,573,000	
Depreciation and Depletion		$3,313,935	$3,313,935	
Federal Royalties			$752,080	
Holding and Use Fees - Producing Properties			$1,800	
General and Administrative		N/A	N/A	
Total Costs Applicable to Sales		$8,886,935	$9,640,815	8.48%
Gross Operating Margin		$514,065	($239,815)	-146.65%
Exploration		$216,159	$216,159	
Minimum Diligence Requirement Adjustment	ASN 8		$337,841	
Recording Fees			N/A	
Holding Fees - Non-Producing Properties	ASN 8		$55,400	
Income (Loss) from Operations		$297,906	($849,215)	-385.06%
Other Adjustments (primarily loss in equity investment)		N/A	N/A	
Income Taxes		N/A	N/A	
Net Income		$297,906	($849,215)	-385.06%
Cash Flow		$3,611,841	$2,464,720	-31.76%

Earnings Per Share	N/A	N/A
High Stock Price	N/A	N/A
Low Stock Price	N/A	N/A
Price Earnings Ratio - High Stock Price	N/A	N/A
Price Earnings Ratio - Low Stock Price	N/A	N/A

ASN = See Assumptions Used in the
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Company C - Assumptions Used in Pro-Forma Presentation

Case 1 restates historical data under the Mining Law of 1989. Case 2 restates historical data and further assumes that all domestic mineral sales are from unpatented mining claims. In the preparation of Company C's Pro-Forma Presentation under the proposed Mining Law of 1989, the following additional assumptions were made for Case 1 and Case 2:

1. As of Fiscal 1989, Company C controlled 6,522 unpatented lode and placer mining claims. Since Company C was formed in 1987 all claims have been held less than 5 years for purposes of calculating the diligence fees under the proposed Mining Law.

2. The $100 per claim recording fee (under the proposed Mining Law of 1989) was included in the Pro-Forma Income Statements in the appropriate acquisition year and is calculated in 1988 and 1989 based upon the difference in number of claims held in 1988 and 1989.

3. The Minimum Diligence Requirement Adjustment was not required for Company C in 1988 and 1987, since actual exploration costs incurred under the Mining Law of 1872 (from the Pro-Forma Income Statements of Company C) were in excess of the minimum diligence requirement under the proposed Mining Law of 1989. In Fiscal 1989, Company C did not incur the required minimum diligence amount. As such the 1989 Pro-Forma Income Statement includes a Minimum Diligence Requirement Adjustment of $337,841.

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Company C - Assumptions Used in Pro-Forma Presentation

4. The Holding and Use Fee adjustment on each of Company C's Pro-Forma Income Statements was calculated from the table of Diligence and Holding Fees as follows:

1989 - Non-Producing Properties	$649,900
1989 - Producing Properties	$ 4,600
	$654,500

1988 - Non-Producing Properties	$524,400
1988 - Producing Properties	$ 2,800
	$527,200

1987 - Non-Producing Properties	$389,700
1987 - Producing Properties	$ 2,800
	$392,500

5. For purposes of calculating the Cost Comparisons per Ounce of Gold Produced for Company C, the following assumptions were made:

   a. Cash Costs per Ounce of Gold Produced for the proposed Mining Law of 1989 were calculated by dividing the number of ounces of gold produced in each year by the Federal Royalties and Holding and Use Fees - Producing Properties expected to be incurred during that year and adding that cost per ounce to the Cash Cost per Ounce of Gold Produced under the Mining Law of 1872.

   b. Total Costs per Ounce of Gold Produced for the proposed Mining Law of 1989 were calculated by adding the Federal Royalties and Holding and Use Fees -Producing Properties cost per ounce (calculated in 5(a) above) to the Total Cost per Ounce of Gold Produced under the Mining Law of 1872.

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Company C - Assumptions Used in Pro-Forma Presentation

5. c. Exploration/Finding Costs per Ounce of Gold Produced were calculated using the following assumptions for Company C:

i. In 1989 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Costs	$12,100,000
Ounces of Gold Produced	307,387
Exploration/Finding Cost per Ounce of Gold Produced	$39.36

ii. In 1988 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Costs	$10,800,000
Ounces of Gold Produced	239,980
Exploration/Finding Cost Per Ounce of Gold Produced	$45.00

iii. In 1987 - under the Mining Law of 1872, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Cost	$5,000,000
Ounces of Gold Produced	158,696
Exploration/Finding Cost Per Ounce of Gold Produced	$31.50

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Company C - Assumptions Used in Pro-Forma Presentation

iv. In 1989 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Cost for 1989 under the Mining Law of 1872	$12,100,000
Recording Fees	126,400
Holding and Use Fees	649,900
Minimum Diligence Requirement Adjustment	337,841

	$13,224,141
Ounces of Gold Produced	307,387
Exploration/Finding Cost Per Ounce of Gold Produced	$43.02

v. In 1988 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Cost for 1988 under the Mining Law of 1872	$10,800,000
Recording Fees	134,700
Holding and Use Fees	524,400

	$11,459,100
Ounces of Gold Produced	239,980
Exploration/Finding Cost Per Ounce of Gold Produced	$47.75

iv. In 1987 - under the proposed Mining Law of 1989, the following items were included in Exploration/Finding Costs per Ounce of Gold Produced:

Exploration Cost for 1987 under the Mining Law of 1872	$5,000,000
Recording Fees	391,100
Holding and Use Fees	389,700

	$5,780,800
Ounces of Gold Produced	158,696
Exploration/Finding Cost Per Ounce of Gold Produced	$36.42

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Company C - Assumptions Used in Pro-Forma Presentation

6. Costs Not Included in the Pro-Forma Analysis of Company C:

   a. Under the proposed Mining Law of 1989, mining companies will be required to backfill mine sites to their original condition. The cost of backfilling Company C's mine sites was not included in this Pro-Forma Analysis. However, the Company estimates such costs to approximate $85,000,000 in the aggregate for Property 1 and Property 2.

   b. In preparing Company C's Pro-Forma Income Statements under the proposed Mining Law of 1989, the most recent mineral reserve report data was used. Under the proposed Mining Law of 1989, the reserve report data would be recalculated using the current cost assumptions of the new law. The effect of the proposed law would be to increase the cutoff sales price and cutoff ore grade of Company C's reserves. The increased cutoff amounts would have entered into Company C's decision to develop its mines, and such mines may not have been economically feasible to operate.

7. On the Pro-Forma Income Statements (calculated under the proposed Mining Law of 1989), the following assumption was made regarding income taxes:

   Federal Royalties were considered to be deductible for purposes of calculating Company C's income tax expense for each of the three fiscal years. The income tax expense on the Pro-Forma Income Statements (calculated under the proposed Mining Law of 1989) uses the same effective tax rate as income tax expense (calculated under the Mining Law of 1872).

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Company C - Assumptions Used in Pro-Forma Presentation

8. Company C is an unusually low cost producer, because one of its two producing properties is extraordinary. Accordingly, Schedule 9 includes a stand alone analysis excluding the aberrant Property 2.

   A. Minimum Diligence Requirement Adjustment calculated as follows:

Diligence Requirement (under the proposed Mining Law of 1989) calculated on the non-producing unpatented mining claims held in conjunction with producing property #1	$554,000
Exploration cost incurred under the Mining Law of 1879 on the non-producing unpatented mining claims held in conjunction with producing property #1	216,159
Minimum Diligence Requirement Adjustment	$337,841

   B. Holding Cost (under the proposed Mining Law of 1989) calculated on the non-producing unpatented mining claims held in conjunction with producing property #1 as follows:

554	unpatented non-producing unpatented claims
$ 100	per claim annual holding fee
$55,400	

Exhibit D to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S.1126 on September 13, 1990.

Company D
Background Information

Company D is engaged in the identification of, acquisition of and exploration for both industrial metals and precious metals and in developing and placing such properties into production. Company D's mineral rights and producing properties are located in Alabama, Arizona, Colorado, Idaho, Kentucky, Minnesota, Missouri, Montana, Nebraska, New Mexico, New Jersey, North Carolina, Pennsylvania, Texas, Utah, Vermont, West Virginia and Wyoming.

Company D employed approximately 8,500 employees as of December 31, 1989.

Exhibit D to Statement of Stephen D. Alfers before the
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Schedule 1 Company D Pro-Forma Income Statement		Fiscal 1989 Under Mining Law of 1872	Case 1 Fiscal 1989 Under Mining Law of 1989	Case 1 % Change Fiscal 1989 Under Mining Law of 1989	Case 2 Fiscal 1989 Under Mining Law of 1989	Case 2 % Change Fiscal 1989 Under Minin Law of 1989
Revenue		$1,790,093,000	$1,790,093,000		$1,790,093,000	
Expenses:						
Operating Costs		$1,241,316,000	$1,241,316,000		$1,241,316,000	
Depreciation		$97,390,000	$97,390,000		$97,390,000	
Amortization						
Royalties						
Federal Royalties	ASN 5		$1,843,441		$104,560,000	
Holding and Use Fees Producing Properties	ASN 4		$5,000		$5,000	
Total Costs Applicable to Sales		$1,338,706,000	$1,340,554,441	0.14%	$1,443,271,000	7
Gross Operating Margin		$451,387,000	$449,538,559	-0.41%	$346,822,000	-23
Exploration		($15,234,000)	($15,234.000)		($15,234,000)	
General and Administrative		($102,998,000)	($102,998,000)		($102,998,000)	
Holding and Use Fees Non-Producing Properties	ASN 4		($874,600)		($874,600)	
Minimum Diligence Requirement Adjustment	ASN 3					
Income from Operations		$333,155,000	$330,431,959	-0.82%	$227,715,400	-31
Other Adjustments		($5,914,000)	($5,914,000)		($5,914,000)	
Income Taxes		($77,115,000)	($76,463,767)		($50,854,000)	
Net Income		$250,126,000	$248,054,192	-0.83%	$170,947,400	-31

Fully Diluted Earnings Per Share	$5.30	$5.26	$3.63
High Stock Price - Common	$33	$33	$23
Low Stock Price - Common	$21	$21	$15
Price Earnings - High Stock Price	6	6	6
Price Earnings - Low Stock Price	4	4	4
High Stock Price - Preferred	$68	$68	$47
Low Stock Price - Preferred	$51	$50	$35
Price Earnings - High Stock Price	13	13	13
Price Earnings - Low Stock Price	10	10	10

ASN = See Assumptions Used
In Pro-Forma Presentation
Pages D-10 - D-12

Exhibit D to Statement of Stephen D. Alfers before the
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[illegible] Schedule 2 Company D Pro-Forma Income Statement		Fiscal 1988 Under Mining Law of 1872	[illegible]	[illegible]	[illegible]	Case 2 % Change Fiscal 1988 Under Minin. Law of 19
Revenue		$1,327,128,000	$1,327,128,000		$1,327,128,000	
Expenses:						
Operating Costs		$921,089,000	$921,089,000		$921,089,000	
Depreciation		$73,000,000	$73,000,000		$73,000,000	
Amortization						
Royalties						
Federal Royalties	ASN 3		$1,296,192		$73,520,000	
Holding and Use Fees Producing Properties	ASN 4		$5,000		$5,000	
Total Costs Applicable to Sales		$994,089,000	$995,390,192	0.13%	$1,067,614,000	7.
Gross Operating Margin		$333,039,000	$331,737,808	-0.39%	$259,514,000	-22.
Exploration		($11,996,000)	($11,996,000)		($11,996,000)	
General and Administrative		($91,935,000)	($91,935,000)		($91,935,000)	
Holding and Use Fees Non-Producing Properties			[illegible]		($874,600)	
[illegible]						
Income from Operations		$229,108,000	$226,932,208	[illegible]	$154,708,400	-32.
Other Adjustments		($9,768,000)	($9,768,000)		($9,768,000)	
Income and Mining Taxes		($49,310,000)	($48,818,514)		($32,582,602)	
Net Income		$170,030,000	$168,345,694	[illegible]	$112,357,798	-33.

Fully Diluted Earnings Per Share	$3.98	[illegible]		[illegible]	
High Stock Price	$24	[illegible]		[illegible]	
Low Stock Price	$13	[illegible]		[illegible]	
Price Earnings - High Stock Price	6	6		6	
Price Earnings - Low Stock Price	3	3		3	
High Stock Price	$57	[illegible]		[illegible]	
Low Stock Price	$51	[illegible]		[illegible]	
Price Earnings - High Stock Price	14	14		14	
Price Earnings - Low Stock Price	13	13		13	

ASN = See Assumptions Used
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[illegible]	Fiscal 1987 Under Mining Law of 1872	Case 1 Fiscal 1987 Under Mining Law of 1989	Case 1 % Change Fiscal 1987 Under Mining Law of 1989	Case 2 Fiscal 1987 Under Mining Law of 1989	Case 2 % Change Fiscal 1987 Under Mining Law of 1989
Revenue	$795,303,000	$795,303,000		$795,303,000	
Expenses:					
Operating Costs	$628,379,000	$628,379,000		$628,379,000	
Depreciation	$54,345,000	$54,345,000		$54,345,000	
Amortization					
Royalties					
[illegible] ASN 5		$599,436		$34,000,000	
[illegible] ASN 6		$5,000		$5,000	
Total Costs Applicable to Sales	$682,724,000	$683,328,436	0.09%	$716,729,000	4.98
Gross Operating Margin	$112,579,000	$111,974,564	-0.54%	$78,574,000	-30.21
Exploration	($8,670,000)	($8,670,000)		($8,670,000)	
General and Administrative	($60,793,000)	($60,793,000)		($60,793,000)	
Holding and Use Fees Non-Producing Properties ASN 4		($874,600)		($874,600)	
[illegible] Adjustment ASN 3					
Income from Operations	$43,116,000	$41,636,964	-3.43%	$8,236,400	-80.90
Other Adjustments	($10,257,000)	($10,257,000)		($10,257,000)	
Income and Mining Taxes	($6,703,000)	($6,517,882)		($2,322,771)	
Net Income	$26,156,000	$24,862,082	-4.95%	($4,343,371)	-116.61

Fully Diluted Earnings Per Share	$0.67	$0.64		($0.1[illegible])	
High Stock Price	$24	$23		($4)	
Low Stock Price	$13	$13		($2)	
Price Earnings - High Stock Price	36	36		36	
Price Earnings - Low Stock Price	20	20		20	

ASN = See Assumptions Used
In Pro-Forma Presentation
Pages D-10 - D-12

Exhibit D to Statement of Stephen D. Alfers before the
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Schedule 4 Company D Pro-Forma Statement of Cash Flows	Fiscal 1989 Under Mining Law of 1872	Case 1 Fiscal 1989 Under Mining Law of 1989	Case 1 % Change Fiscal 1989 Under Mining Law of 1989	Case 2 Fiscal 1989 Under Mining Law of 1989	Case 2 % Change Fiscal 1989 Under Mining Law of 1989
Cash Provided by (Used in):					
Operating Activities					
Net Income	$250,126,000	$248,054,192		$170,947,400	
Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:					
Depreciation, Depletion and Amortization	$97,390,000	$97,390,000		$97,390,000	
Deferred Income Taxes	$2,197,000	$2,197,000		$2,197,000	
Gain on Sale of Assets	($9,729,000)	($9,729,000)		($9,729,000)	
Issuance of Treasury Stock for Employee Benefits	$2,188,000	$2,188,000		$2,188,000	
Other	$7,887,000	$7,887,000		$7,887,000	
Changes in Assets and Liabilities	($45,747,000)	($45,747,000)		($45,747,000)	
Cash Provided by Operating Activities	$304,312,000	$302,240,192	-0.68%	$225,133,400	-26.02%

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of the Committee on Energy and Natural Resources regarding
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Schedule 5 Company D Pro-Forma Statement of Cash Flows	Fiscal 1988 Under Mining Law of 1872	Case 1 Fiscal 1988 Under Mining Law of 1989	Case 1 % Change Fiscal 1988 Under Mining Law of 1989	Case 2 Fiscal 1988 Under Mining Law of 1989	Case 2 % Change Fiscal 1988 Under Mining Law of 1989
Cash Provided by (Used in):					
Operating Activities					
Net Income	$170,030,000	$168,345,694		$112,357,798	
Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:					
Depreciation, Depletion and Amortization	$73,000,000	$73,000,000		$73,000,000	
Deferred Income Taxes	$10,735,000	$10,735,000		$10,735,000	
Gain on Sale of Assets	($36,574,000)	($36,574,000)		($36,574,000)	
Issuance of Treasury Stock for Employee Benefits	$9,560,000	$9,560,000		$9,560,000	
Other	$5,800,000	$5,800,000		$5,800,000	
Changes in Assets and Liabilities	$38,417,000	$38,417,000		$38,417,000	
Cash Provided by Operating Activities	$270,968,000	$269,283,694	-0.62%	$213,295,798	-21.28%

Exhibit D to Statement of Stephen D. Alfers before the
Mineral Resources Development and Production Subcommittee
of the Committee on Energy and Natural Resources regarding
S. 1126 on September 13, 1990.

Schedule 6 Company D Pro Forma Statement of Cash Flows	Fiscal 1987 Under Mining Law of 1872	Case 1 Fiscal 1987 Under Mining Law of 1989	Case 1 % Change Fiscal 1987 Under Mining Law of 1989	Case 2 Fiscal 1987 Under Mining Law of 1989	Case 2 % Change Fiscal 1987 Under Mining Law of 1989
Cash Provided by (Used in):					
Operating Activities					
Net Income	$26,156,000	$24,862,082		($4,343,371)	
Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:					
Depreciation, Depletion and Amortization	$73,000,000	$73,000,000		$73,000,000	
Deferred Income Taxes	$10,735,000	$10,735,000		$10,735,000	
Gain on Sale of Assets	($36,574,000)	($36,574,000)		($36,574,000)	
Issuance of Treasury Stock for Employee Benefits	$9,560,000	$9,560,000		$9,560,000	
Other	$5,800,000	$5,800,000		$5,800,000	
Changes in Assets and Liabilities	$38,417,000	$38,417,000		$38,417,000	
Cash Provided by Operating Activities	$127,094,000	$125,800,082	-1.02%	$96,594,629	-24.00%

Exhibit D to Statement of Stephen D. Alfers before the
Mineral Resources Development and Production Subcommittee
of the Committee on Energy and Natural Resources regarding
S. 1126 on September 13, 1990.

Schedule 7
Company D
Cost Comparisons Per Ounce of Minerals Produced

Due to the diversified mix of Company D's Mineral Production of both industrial and precious metals and time constraints. We were unable to obtain the information needed to prepare the Cost Comparisons Per Ounce of Minerals Produced Table.

Exhibit D to Statement of Stephen D. Alfers before the
Mineral Resources Development and Production Subcommittee
of the Committee on Energy and Natural Resources regarding
S. 1126 on September 13, 1990.

hedule 8 mpany D inimum Diligence, Holding and Use Fees nder the [illegible]	# of Claims	Recurring Fee Per Claim	ASN 2 Recurring Fee	Acres	ASN 1 Years Held	Diligence Fee Per Acre	Total Diligence	Surface Fee - Per Acre	Surface Fee	Holding Fee - Per [illegible]	ASN 4 [illegible]
otal Non-Producing Unpatented Properties											
lon-Producing Unpatented Properties	1,099	$100	$105,900	21,180	1-5	$50	$1,059,000			$100	$105,900
lon-Producing Unpatented Properties	1,072	$100	$107,200	21,440	5-10	$100	$2,144,000			$100	$107,200
lon-Producing Unpatented Properties	6,615	$100	$661,500	132,300	>10					$100	$661,500
										$100	$0
roducing Unpatented Claims	25	$100	$2,500	500				$5	$2,500	$100	$2,900
otals	8,771		877,100	175,420			$3,203,000		$2,500		$877,100

ASN = See Assumptions Used
In Pro-Forma Presentation
Pages D-10 - D-12

Exhibit D to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S. 1126 on September 13, 1990.

Company D - Assumptions Used in Pro-Forma Presentation

Case 1 restates historical data under the Mining Law of 1989. Case 2 restates historical data under the Mining Law of 1989 and further assumes that all domestic mineral sales are from unpatented mining claims. In the preparation of Company D's Pro-Forma Presentation under the proposed Mining Law of 1989, the following additional assumptions were made for Case 1 and Case 2:

1. As of Fiscal 1989, Company D controlled 8,771 unpatented lode mining claims. Company D's management determined the precise acquisition date for each unpatented claim. For purposes of computing diligence fees under the proposed Mining Law of 1989. It was assumed that all claims were acquired before Fiscal 1987.

2. The $100 per claim recording fee (under the proposed Mining Law of 1989) was not included in the Pro-Forma Income Statements It was assumed that recording fees, in the amount of $877,100 were incurred prior to Fiscal 1987.

3. The Minimum Diligence Requirement Adjustment was not required for Company D in 1989, 1988 and 1987 since actual exploration costs incurred under the Mining Law of 1872 (from the Pro-Forma Income Statements of Company D) were in excess of the minimum diligence requirement under the proposed Mining Law of 1989.

4. The Holding and Use Fee adjustment on each of the Company D's Pro-Forma Income Statements was calculated from the table of Minimum Diligence, Holding and Use Fees as follows:

1989 - Non-Producing Properties	=	$ 874,600
1989 - Producing Properties		$ 5,000
		$ 879,600

Note: The same calculation was used for all fiscal years.

5. Company D was able to provide the domestic revenue amounts (excluding coal revenues) related to unpatented production, the 8% Federal Royalty was calculated on these amounts.

Exhibit D to Statement of Stephen D. Alfers before the Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources regarding S. 1126 on September 13, 1990.

Company D - Assumptions Used in Pro-Forms Presentation

6. Costs Not Included in the Pro-Forma Analysis of Company D:

   a. Under the proposed Mining Law of 1989, mining companies will be required to backfill mine sites to their original condition. The cost of backfilling Company D's mine sites was not included in this Pro-Forma Analysis.

   b. In preparing Company D's Pro-Forma Income Statements under the proposed Mining Law of 1989, the most recent mineral reserve report data was used. Under the proposed Mining Law of 1989, the reserve report data would be recalculated using the current cost assumptions of the new law. The effect of the proposed law would be to increase the cutoff sales price and cutoff ore grade of Company D's reserves. The increased cutoff amounts would have entered into Company D's decision to develop its mines, and such mines may not have been economically feasible to operate.

7. On the Pro-Forma Income Statements (calculated under the proposed Mining Law of 1989), the following assumption was made regarding income taxes:

   Federal Royalties were considered to be deductible for purposes of calculating Company D's income tax expense for each of the three fiscal years. The income tax expense on the Pro-Forma Income Statements (calculated under the proposed Mining Law of 1989) uses the same effective tax rate as income tax expense (calculated under the Mining Law of 1872).

Davis, Graham & Stubbs,
Attorneys at Law,
Denver, CO, September 27, 1990.

Ms. Lisa Vehmas,
Committee on Energy & Natural Resources, U.S. Senate, Washington, DC.

Re: Supplement to September 13, 1990 Statement of Stephen D. Alfers on S. 1126

Dear Lisa: Enclosed are five copies each of Exhibits B and D to Steve Alfers' Statement before Mineral Resources Development and Production Subcommittee of the Committee on Energy and Natural Resources on September 13, 1990 regarding S. 1126, to be included in the record. Also for the record, we would like the Committee to take note of the following:

1. We would like to point out some dramatic observations demonstrated by the Pro-Forma Financial Statements for Company D on Exhibit D. Under the Case 1 analysis for Company D, the Pro-Forma Income Statements show that there would be only a nominal, less than 6%, effect on income. Under the Case 2 analysis, however, the effect on income is drastically different. This Case 1/Case 2 comparison demonstrates the difference between the immediate effect of S. 1126 on mining companies whose production comes primarily from patented claims (Case 1), and the long term impact of S. 1126 when mining companies will no longer be able to take mining claims to patent (Case 2). There is no "level playing field" for the public when miners prefer to bypass public lands in favor of non-fee, lower-royalty private lands.

2. Deborah Estes raised the question whether mining and operating expenses have been set off against the S. 1126 diligence requirements in Exhibits A–D to Steve Alfers' Statement. In response, our Case 1 analysis for all four mining companies assumes that exploration expenses, but not mining or operating expenses, have been set off against the minimum diligence requirement on exploration claims under S. 1126. Expenditures for mining and operating on Claims patented under the Mining Law of 1872 cannot apply toward the diligence requirement under S. 1126.

In our Case 2 analysis for all four companies, we have assumed that under S. 1126 operating expenditures on mineral patents cannot apply toward the minimum diligence requirement on contiguous exploration claims. We have therefore applied mining and operating expenses incurred on patented claims only toward the diligence requirements which would be required on those same patented claims if they were S. 1126 mineral patents. We have not applied any mining and operating expenses incurred on what are now patented claims toward the diligence requirement for S. 1126 exploration claims.

3. Senator Bumpers questioned Mr. Jamison at the hearings on September 13, 1990 regarding the gold mining operations off-shore of Nome, Alaska. We would like the record to reflect the enclosed press release from Inspiration Resources Corporation, the operator of that mine, that it will close that operation permanently because of the tremendous expense required.

Thank you for your cooperation in this process. We were pleased to have the opportunity to appear on September 13 and hope you will contact us if we can be of any further assistance.

Sincerely,

Lisa M. Bain.

Senator **Bumpers**. Mr. Dempsey.

STATEMENT OF STANLEY DEMPSEY, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, ROYAL GOLD, INC., DENVER, CO, ON BEHALF OF THE AMERICAN MINING CONGRESS

Mr. **Dempsey**. Mr. Chairman, members of the subcommittee, my name is Stanley Dempsey. I am chairman and chief executive officer of Royal Gold, Inc., a publicly owned gold exploration and mining company that operates in the western United States. I am appearing here today as a representative of the American Mining Congress.

Before moving along with my statement, let me say that despite our industry's opposition to royalties and high fees, we are certainly prepared to cooperate constructively in this legal and economic analysis that your subcommittee is undertaking. There is a large body of technical literature on royalties, royalty rates, royalty bases. There are a number of experts in the field, academics and mining consultants, that your folks ought to know about, and I will be happy to supply that kind of information.

The subcommittee's letter inviting testimony asks how to provide a fair return to the government for hardrock minerals taken from the public lands and asks for comments on the royalty and fee provisions of S. 1126.

The current law makes minerals available to those who are willing to search for and develop them and relies on a free market system for mineral development. Under this system, the government shares in the economic activity created by the mining industry through taxation of mining companies and their individual owners and employees. We believe that that system works remarkably well and that it provides the minerals the Nation needs when it needs them and provides them at low cost. While it is true that there is plenty of precedent for government taking some of the proceeds of mining activity, as in the cases mentioned here before, the Acquired Lands Leasing Act, et cetera, the fact that government takes a share of minerals under those schemes does not necessarily make it the best policy for hard minerals.

The answers to the questions asked by the subcommittee really depend upon the objectives of the mineral owner. Private mineral owners usually seek maximum revenues from mineral activity on their land. On the other hand, government, in addition to seeking revenues, often has broader objectives. These may include encouragement of exploration and discovery, diligent development of minerals that have been discovered, encouragement of a economically healthy mining industry, the encouragement of regional or national development, including the creation of jobs, conservation of mineral resources, availability of critical minerals for national defense, and they often have a desire of simplifying the administration of their mining law.

Governments all over the world are always interested in more revenues, but many governments are willing to reduce or forego royalties altogether to achieve more important objectives. As examples, the State of Western Australia imposes no royalty on gold and never has, and the U.S. Government paid bonuses, which are really a form of negative royalty, for discovery of uranium ore when that was so important during the 1950's.

Proponents of S. 1126 say that they want a fair return to the government. That return can come in the form of royalties as an added tax on mining or it can come in the form of more exploration, more discoveries of strategic and critical, and of more national wealth, more jobs, more income taxes, and it can also come in the form of more research to develop better mining techniques and better health and safety techniques and in the form of more attention to environmental controls and reclamation.

It is the position of the American mining industry that the international competitiveness of the hard minerals segment of the industry is particularly sensitive to increases in costs, and that imposing additional costs in the form of royalties injures our competitiveness. Hard minerals are very difficult to find, and their development takes a long time and a lot of capital. We believe that the present system of making hard minerals available as a reward for discovery and their development by individuals and firms operating in a free market system is working well and should be retained. And for these reasons, the industry does oppose paying royalties to the government for locatable minerals.

If a royalty is to be imposed, it will be necessary to again review the objectives of the mineral owner, in this case the government, and to determine which of the many techniques for calculating royalty are best suited to obtaining these objectives.

In developing an approach to royalty policy, it is appropriate to borrow from tax theorists. They urge that a tax be uniform and simple, and I guess we mining people would argue for a third test, that a tax be stable, that that tax be predictable as a cost of mining, this because the mine finding and development process takes so long. Royalties should be uniform, simple and stable. Also, if a royalty is to be imposed, it should apply only to new operations and not be imposed retroactively.

This is probably the place to reemphasize that any royalty should be kept simple. The Minerals Management Service of the Department of the Interior does not have a brilliant track record with respect to managing the collection of royalties. The regulatory framework for Federal coal product valuation has been up in the air for years, and despite a significant and costly bureaucratic effort, no one seems to be happy with the way the gross value of coal products is determined. Given that unhappy background, we do not see why it is in the best interest of the Nation to impose new work on that agency.

Having said that, let me speak in more detail about the types of royalties commonly used in hardrock mining. There are four approaches commonly in use today. The first is a production share royalty. That is basically an in-kind, fixed share of the actual minerals produced.

The second is a royalty based upon units of production. This is usually so many dollars or cents per ton of ore.

A third is royalty based on gross value. Royalty in this case is based upon sale value, usually less certain deductions for costs beyond the mine site. The net smelter return royalty fits this category.

And finally, there is royalty based upon net value, royalty based on sales minus most costs.

The royalty rate in each case is expressed in either a fixed dollar per unit or as a fixed or variable percentage of production value. Rates tend to be higher for private mineral owners than for governments because private owners are not receiving other shares of mineral revenues such as income taxes.

My testimony describes in a lot of detail how the various types of royalty arrangements impact mine economics. I will not belabor them here, but will simply summarize how most students of the subject view the merits of the various types of royalty.

First, with respect to the production share royalty, it is of limited applicability to a general mining law. A government usually does not want a share of the actual minerals produced. There may be some exceptions as in the case of the government wanting to stockpile a strategic mineral, and there it might be prepared to accept a royalty in kind. Examples might be uranium oxide in the form of yellowcake or, say, a tungsten or a chromite concentrate.

Second, the royalty based on units of production is simple to administer, but has fallen into disfavor because it does not reflect inflation or changes in the real price of minerals. The 5 cents per ton of Federal coal, that type of royalty, is an example.

The royalty based on gross value is the royalty most commonly used in hard mineral leases with private owners and with State governments and is generally considered to be the most theoretically correct in terms of an appropriate base. The miners' biggest complaint about a royalty based on gross value is that he must pay it whether the mine is profitable or not.

And finally, the royalty based on net value has the least impact on cutoff grades, but is the most difficult to administer. All costs are deductible and must be audited for royalty accounting purposes. Operators of marginal mines are relieved of paying a royalty on a losing proposition, but the mineral owner may not have adequate protection against inefficient operations.

Finally, I have included in my written testimony answers to all of the questions asked by the subcommittee. I would like to answer two of those questions, royalty question 2 and fee question 1.

Royalty question 2 asks for comments on the 8 percent royalty provision of S. 1126. That 8 percent rate in S. 1126 is beyond what anyone would expect in a hard minerals law and if calculated on a gross value, is clearly out of line with private and State mineral leasing practices. Most specialists in the mining field would view a 1 or 2 percent royalty as a more appropriate level for a gross value royalty payable to the government.

Question 1 on fees asks are the fee provisions of S. 1126 reasonable. The American Mining Congress has supported reasonable fees for recordation of mining claim documents. The fees provided in S. 1126 are not reasonable, and to the extent that they are not reasonable, we oppose them.

My company, Royal Gold, owns or maintains 755 unpatented mining claims. That number was larger last year, but we have dropped some claims recently because we cannot afford the annual labor and filing fees. You may be interested to know that many of the claims we were forced to drop were immediately relocated by other mining companies. That is the way the mining law is supposed to work, and believe me it does. We find that the $100 per claim requirement is not insignificant, particularly when that money must be spent on the ground, not on legal fees or permitting fees or a lot of preparation, but actually spent on the ground. Our annual labor budget was $75,500 this year. Some of this was paid by our lessees which include major companies like Battle Mountain Gold, but nevertheless, it is a lot of money for a small company. In addition and including the $75,000, we spent $515,000 in developing our claims, and our lessees also spent significant sums. The diligence fees provided for in S. 1126 would clearly run us off of our claims.

Thank you very much.

[The prepared statement of Mr. Dempsey follows:]

PREPARED STATEMENT OF STANLEY DEMPSEY, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, ROYAL GOLD, INC., DENVER CO, ON BEHALF OF THE AMERICAN MINING CONGRESS

Mr. Chairman, members of the Subcommittee, my name is Stanley Dempsey. I am Chairman and Chief Executive officer of Royal Gold, Inc., a publicly owned gold exploration and mining company that operates in the Western United States. I am appearing here today as a representative of the American Mining Congress.

The American Mining Congress is the principal trade association of the mining industry in the United States. Its member companies mine and process most of the domestically produced metals, industrial minerals and energy minerals, other than oil and gas, utilized in the American economy. A large proportion of the minerals produced in this country are from public lands, and the American Mining Congress, therefore, is vitally concerned with legislation governing the acquisition of mining rights on such lands.

The American Mining Congress testified on all aspects of the Mining Law of 1989 at hearings held by this subcommittee June 7, 1989. My testimony today is consistent with that earlier statement, but responds specifically to the questions put forward in your invitation to today's hearing.

The subcommittee asks how to provide a fair return to the government for hard rock mineral exploitation on public lands. It also asks for comments on specific issues related to the royalty and fee issues raised by the provisions of S. 1126.

The mining industry has been consistent in its opposition to mineral disposal schemes that involve paying royalties to the government for locatable minerals. The current law makes minerals available to those willing to search for and develop minerals, and relies on a free market system for mineral development. Under this system, the government shares in the economic activity created by the mining industry through taxation of mining companies, their individual owners and employees. We believe that the system has worked remarkably well, and that it has provided the minerals the nation needed when it needed them, and provided them at low cost. While it is true that there is plenty of precedent for government taking some of the proceeds of mining activity, as in the case of common varieties, acquired lands leasing act minerals, oil and gas, and other leasing act minerals such as phosphate and coal, the fact that government takes a share of minerals under such schemes does not make it necessarily the best policy for hard minerals.

The answers to the questions asked by the committee depend upon an understanding and consideration of the objectives of the mineral owner. Private mineral owners usually seek maximum revenues from mineral activity, but some are willing to sacrifice shorter term returns for longer term maximum extraction. On the other hand, government, in addition to an objective of seeking more revenues, often has broader objectives which may include:

1. Encouragement of exploration and discovery of minerals;
2. Promotion of diligent development of minerals that have been discovered;
3. Encouragement of an economically healthy mining industry—one that can carry the costs of production, research into better methods, maximum attention to worker health and safety issues, environmental compliance and reclamation, and replacement of depleting ore deposits;
4. Encouragement of regional or national development, including the creation of employment opportunities;
5. Conservation of mineral resources;
6. Availability of mineral supplies for national defense; and
7. Simplicity of administration of mineral disposal systems.

Governments all over the world are always interested in more revenues, but many governments are willing to accept reduced royalty levels or to forego royalties altogether to achieve more important objectives. In some cases, governments even provide for negative royalties to secure other objectives. I cite as examples the fact that the state of Western Australia imposes no royalty on gold, and that the U.S. government paid bonuses, which are a form of negative royalty, for discovery of uranium ore during the 1950s. Gold mining is essential to the well-being of many outback communities in Western Australia, and the government has even gone so far as providing direct subsidies to gold producers during times of depressed prices to maintain employment in those towns, and it is only recently that the federal government in Australia has even considered applying a corporate income tax to gold miners. This country found it necessary to increase the reward for discovery of uranium when the nation felt it desperately needed domestic supplies of what was then considered a rare strategic material. Prospectors were paid a bonus of $10,000 to find commercial deposits.

The answer to the first question is that Congress should weight its various objectives and decide whether its desire for additional revenues outweighs other important policy objectives. The proponents of the legislation being considered today say they want a "fair return" to the government, or that they want "some return to the federal government for federal resources." That return can come in the form of royalties as an added tax on mining, or it can come in the form of more exploration, more discoveries of strategic and critical materials, and of more national wealth, more job creating mine development and income taxes. It can also come in the form of more research to develop better mining techniques and better health and safety techniques, and in the form of more attention to environmental controls and reclamation. It is the position of the American mining industry that the international competitiveness of the hard minerals segment of the industry is particularly sensitive to increases in costs and imposing additional costs in the form of royalties injures its competitiveness. Hard minerals are very difficult to discover, and their development takes a long time and a lot of capital. We believe that the present system of making hard minerals available as a reward for discovery, and their development by individuals and firms operating in a free market system is working well and should be retained.

If a royalty is to be imposed, it will be necessary to again review the objectives of the mineral owner, and to determine which of the many techniques for calculating royalty are best suited to attaining those objectives.

There is a considerable body of technical literature dealing with royalty policy and economics, and there are a number of mining consultants and academics who have particular expertise in this field. I will be happy to provide the committee's staff with copies of papers dealing with the subject, and with the names of experts in the field. For today's purposes, I will summarize some of the issues that must be considered in developing a royalty system that would be consistent with the objectives being sought by S. 1126.

In developing an approach to royalty policy, it is appropriate to borrow from tax theoreticians. Tax people urge that a tax be uniform—that all tax payers be treated equally, and simple—that it be simply stated, easily understood, and easy to administer. Mining people argue for a third test—that a tax be stable—that the tax be predictable as a cost of mining this because the mine finding and development process is so long. Royalties should be uniform, simple and stable. Also, if a royalty is to be imposed it should apply only to new operations (prospectively) and not be imposed retroactively.

It is also necessary to say something at this point about some characteristics of hard rock minerals that bear upon the selection of a royalty system. There are perhaps 80 different minerals being produced under the 1872 Mining Law, and they vary greatly with respect to mode of occurrence, extraction techniques, need for post-mining upgrading to make a saleable product, and with respect to marketing fundamentals. Minerals occur in a wide variety of deposits, including narrow veins, sediment hosted deposits, and large disseminated deposits where boundaries are defined by the cost of extraction. The concept of cutoff grade is particularly important in understanding the impact of a royalty on a mine and upon the ultimate recovery of all of the minerals in a deposit. Put simply, cutoff grade is the grade below which it is not profitable to mine mineralized rock. It is common for miners to redefine an ore body by selecting portions which have higher grade, thereby reducing tons, or vice versa.

When a royalty is added as a new cost or burden on mine economics, it usually causes such redefinition in cut off grade, forcing the miner to leave tons of marginal material behind, never to be recovered after the mine is worked out. Some royalty mechanisms have a greater impact on cutoff grade than others and should be avoided if maximum recovery is an important mineral policy goal.

Likewise, extraction methods, further processing and marketing are important issues in royalty calculation. The classic royalty is a share of mine production free of cost at the mouth of the mine, paid in-kind. By in-kind, I mean the mineral owner receives a share, such as 1/16 of the actual minerals. This worked well for gold and lead, and other minerals that could be used with little further treatment, but does not work at all for mineral products that require further processing before sale. If a royalty is based upon the value of a mineral after processing, and is measured by sale price in this first marketable form, the calculation is simple, but the miner is being taxed upon further processing—not a fair way to value the mineral owners contribution. But if the mineral is valued at the mine mouth, deductions must be made from the sale price, requiring an elaborate administration of the royalty. Any royalty scheme developed for use in S. 1126 needs to take into account the wide range of extraction, processing and marketing that now exists, and the issues such as simplicity and equity.

This is probably the place to say that any royalty that you develop should be kept simple. The Minerals Management Service of the Department of the Interior does not have a brilliant track record with respect to managing the collection of royalties. The regulatory framework for federal coal product valuation has been up in the air for years, and despite a significant and costly bureaucratic effort, no one seems to be happy with the way that the gross value of coal products is determined. Given that unhappy background, we do not see why it is in the best interest of the nation to impose new work on this agency.

Having said that, let me speak in more detail about the types of royalties commonly used in hard rock mining and briefly comment on how they meet the three tests just described, and how they relate to various mineral owner objectives. There are, of course, many variations in the ways royalties have been developed, but there are four approaches commonly in use today:

1. *Production Share Royalty*—an in-kind fixed share of the actual minerals produced.
2. *Royalty Based Upon Units of Production*—usually so many dollars or cents per ton or cubic yard of ore.
3. *Royalty Based Upon Gross Value*—royalty is based upon sale value, usually less certain deductions for costs beyond the mine site. The net smelter return (NSR) royalty fits this category.
4. *Royalty Based Upon Net Value*—royalty is based upon sales minus defined costs.

The royalty rate in each case is expressed in either a fixed dollar per unit or as a fixed or variable percentage of production value. Where a variable percentage is used, it varies on a sliding scale in relation to ore value, product price, or ore grade, or sometimes a combination of two or more of these variables. Rates tend to be higher for private mineral owners than for governments because private owners are not receiving other shares of mineral revenues such a income taxes.

The relative merits of the various methods are described objectively and in detail in an excellent report which was prepared by Dr. Thomas J. O'Neill for the Department of the Interior in 1980. I will not belabor the conclusions here, but will summarize the conclusions that Dr. O'Neill and most other students of the subject have come to as follows:

1. *The Production Share Royalty* is of limited applicability to a government mineral disposal scheme. A government generally does not want a share of the actual minerals produced. Exceptions might occur where the government wishes to stockpile a strategic mineral, and thus would be prepared to accept its royalty in-kind. Examples might be U_3O_8 in the form of yellowcake or a tungsten concentrate.
2. *The Royalty Based Upon Units of Production* is simple to administer but has fallen into disfavor as not reflecting inflation or charges in the real price of minerals produced. The former $.05/ton federal coal royalty is an example.
3. *The Royalty Based Upon Gross Value* is the royalty most commonly used in hard mineral leases with private mineral owners and with state governments, and is generally considered to be the most theoretically correct in terms of an appropriate base. It is simple, but loses simplicity when appropriate deductions are allowed. Royalty collectors must assure themselves that such deductions are properly made. The NSR royalty, once an industry standard, is not so standard today because there are fewer smelters, and more producers are upgrading to saleable products on site. The miners biggest complaint about a royalty based on gross value is that he must pay it whether the mine is profitable or not. This raises cutoff grades and will close some mines.
4. *The Royalty Based Upon Net Value* has the least impact on cutoff grades, but is the most difficult to administer. All costs are deductible and must be audited for royalty accounting purposes. Operators of marginal mines are relieved of paying a royalty on a losing proposition, but the mineral owner may not have adequate protection against inefficient operations. Minerals are a depleting resource and a poor operation could deplete a mine but yield no royalty, a double insult.

Fixed royalty rates expressed in dollars or cents per unit of production are out of favor as not properly reflecting changes in value and inflation. Fixed royalty rates expressed as a fixed percentage of value are simple and adjust as the value of the product changes. They fairly tax each unit of output at the same rate. Variable royalty rates are like a progressive tax on income in that a higher royalty is paid on ores of higher value, and the rate is reduced for marginal ore. However, it may be difficult to develop a national royalty system that can be so detailed with respect to individual minerals or mines. Such a system would likely require a mineral royalty administration of gigantic size.

Summing up, the first step in developing a national hard minerals disposal scheme is to set overall mineral policy objectives. It may be that mineral conservation and national security goals outweigh the desire to bring cash into the Treasury. If not, a royalty system can be developed that will further tax the production of minerals. In designing that royalty system, you will want to try to minimize impact on cutoff grades, make the royalty as simple as possible to administer, and as predictable as possible. I believe that the foregoing discussion of royalty matters will help you if you undertake the task.

Finally, I will comment briefly and specifically on each of the questions put to me in the letter inviting testimony.

ROYALTY

Question 1. [What are] the advantages and disadvantages of a royalty?

Answer. Royalties provide revenues to mineral owners. They are an additional cost of producing minerals, and when imposed by a government are simply another form of taxation. Royalties tend to reduce the quantity of minerals that can be extracted from a particular deposit by raising the cut off grade and thus operate in a manner contrary to good conservation practice. Governments may find that other objectives such as encouragement for exploration and development of domestic supplies of critical or strategic minerals outweigh the need for additional revenue, and determine not to add a royalty burden on mining.

Question 2. [Comment on] the royalty provision of S. 1126, Section 203(d).

Answer. S. 1126 provides for "an overriding royalty of 8 percent of the value of hard rock mineral production." It is not clear to me what is meant by "overriding." The term "value of hard rock mineral production" is not defined. Presumably, this must be defined in regulations. The language of the bill is permissive of a gross value at the mine mouth, or a net smelter return type of base for the royalty. Our concern here is that leaving the definition to rule making may leave the industry in limbo for years while an agency works out complicated formulas for calculating value. It might be wise to complete the task now by including a definition of value in the statute.

The 8 percent rate in S. 1126 is, of course, beyond what anyone would expect in a hard minerals bill and, if calculated on a gross value, is clearly out of line with private and state mineral leasing practice. I believe it is fair to say that no serious student of royalty practice around the world would be prepared to endorse a rate this high for general applicability in a national hard rock minerals disposal scheme. While there are some unusual cases where known high grade deposits might command high royalty rates, current land acquisition practices in the industry could not accommodate an 8 percent override in favor of the government.

Today, a prospector may assemble a land package by staking and keep a royalty of 1-4 percent of NSR when he farms out to a larger company for more intense exploration. By the time a property is finally put into production it might have a 4-5 percent burden on it from earlier owners, and that is about all that most properties can stand. Geoff Snow testified at last year's hearing on this bill that 34 of 43 gold mines (80 percent) that pay royalties to Nevada also pay royalties to individuals or small companies. These royalties average 4.2 percent of the value of production. There simply is not room in this structure for an additional 8 percent for the government. The real effect of a large percentage royalty of this type would be to eliminate the prospectors and small companies who play an important part in working up prospects. Only the very largest of companies could continue to work on public lands and even they would find the burden too great on many properties. The large companies ultimately develop the large mines, but even they acknowledge the importance of individuals and small firms in the mine finding and development process. Most specialists in the mining field would view a 1 percent or 2 percent royalty as a more appropriate level for a gross value royalty payable to the government.

If the royalty provision of S. 1126 is applied retroactively, the impact upon existing claims and private mining agreements involving those claims will be chaotic and unfair. Existing claims and transactions have not contemplated a royalty to the government. Any royalty should be applied prospectively only.

As a final comment on the proposed royalty, we believe that there may be a need for some mechanism for relief from a governmental imposed royalty, and that if additional overrides are imposed by private parties, some adjustments by all royalty owners might be appropriate in times of low mineral prices. We note the issue and would like to comment on such a mechanism in the future.

Question 3(a). [What are] the advantages and disadvantages of a royalty based on net smelter return as an alternative to the royalty provision in S. 1126?

Answer. As discussed above, an NSR royalty is quite common for base and precious metals that are recovered by smelting of crude ore or concentrates. The theoretical basis of the NSR royalty works for other minerals, but adjustments to the deductions from first sale price are required. Fewer minerals are going to smelters today because miners are further processing ores on site, and because there are far fewer custom smelters than once was the case. The NSR royalty can raise cutoff grades, but is considered one of the best overall approaches to designing royalties.

Question 3b. [What are] the advantages and disadvantages of a royalty as a percentage of gross income for depletion purposes, not to exceed a fixed percentage of taxable income, as an alternative to the royalty provision in S. 1126?

Answer. We have reservations about using tax values for royalty calculations, but believe this approach should be examined. A royalty is another type of tax, so perhaps integration of the proposed royalty with the general income tax system can be made to meet other objectives such as economic neutrality and simplicity.

Question 3c. [What are] the advantages and disadvantages of a broad-based, low-rate royalty imposed at point of first arms length sale as an alternative to the royalty provision in S. 1126?

Answer. The problem with point of first arms length sale is that the miner is paying taxes on further processing. This is partly offset by a lower royalty rate, but the problem could be particularly difficult in situations where most of the value of a mineral product is added in processing, manufacturing and packaging.

Question 3d. [What are] the advantages and disadvantages of an imposition of a different royalty for different groups of minerals as an alternative to the royalty provision in S. 1126?

Answer. There is ample precedent for imposing different royalty mechanisms and/or rates on different minerals. One of the arguments for no royalty on hard minerals arises out of their elusive distribution in the earth's crust. We say that hard minerals deserve a special break because they are so hard to find. There are many examples of different royalties for different minerals. Western Australia has a variable rate schedule for hard rock minerals. Diamonds, bauxite and iron ore command a higher rate than lead and kaolin. Strategic minerals like mercury and platinum are lower yet, and gold has no royalty. The major problem with discriminating rates is loss of simplicity, and possible inequity and interference with market responses by competing materials.

Question 3e. [What are] the advantages and disadvantages of any other alternative you may wish to comment on as an alternative to the royalty provision in S. 1126?

Answer. We believe that the Committee needs to decide first what objectives it ultimately seeks before it tries to design a royalty scheme. Once defined, we are quite willing to work with the Committee to help avoid prescriptions that would create problems for the industry and nation.

Question 4. [What are] the advantages and disadvantages of administering the above royalty provisions, including valuation, collection, and enforcement issues?

Answer. As discussed above, we are quite concerned about administration of any federal royalty scheme adopted in S. 1126 or similar legislation. We have watched with alarm the four or five year effort undertaken by the Minerals Management Service to come up with a regulatory framework for valuing coal products for royalty purposes. None of the parties impacted by these regulations is happy, and the entire western coal market has been upset by the uncertainty generated out of this process. We are particularly concerned that the Department of the Interior seems to be strongly influenced by a desire to maximize revenues to the government, to the exclusion of other important mineral policy objectives. The hard minerals industry cannot stand similar treatment. Prolonged efforts to draft regulations for hard minerals will be self-defeating if our industry is gone before the regulations can be made final.

FEES

Question 1. [Are] the fee provisions of S. 1126 (recordation, annual filing, surface use, and diligence) [reasonable]?

Answer. The American Mining Congress has supported reasonable fees for recordation of mining claim documents. The fees provided for in S. 1126 are not reasonable, and to the extent that they are not reasonable, we oppose them. Other witnesses will respond in more detail on the fee issue, but I want to state that my company, Royal Gold, owns or maintains 755 unpatented mining claims. The number of claims was greater last year, but we have dropped a number of claims because we cannot afford the annual labor and filing fees. You may be interested to know that many of the claims we were forced to drop were immediately relocated by other mining companies. That is the way the Mining Law is supposed to work, and believe me it does. We pay significant fees to record claim documents at both county and federal offices, and must pay for surveying and claim staking; no small sums. We also find that the $100 per claim requirement is not insignificant, particularly when that money must be spent on the ground doing something that really helps develop the claim. Our annual labor budget was $75,000 this year. Some of that was paid by our lessees, which include major companies like Battle Mountain Gold, but nevertheless, it is a lot of money for a small company. In addition, we have spent $515,200 in diligent development of our claims, and our lessees have also spent significant sums. The diligence fees provided for in § 204 of S. 1126 would clearly run us off many of our claims, and they are not necessary.

Question 2. [What are] alternatives to the fee provisions of S. 1126?

Answer. Fees should be limited to the actual cost of administration. Fees other than those for administration are not appropriate. They are merely an additional tax on mining activity and as such injure the international competitiveness of U.S. mineral producers.

Question 3. [Should] fees [be used] to recover the costs to the federal government of administering the Mining Law program?

Answer. As stated in my answer above, we have, in the past, supported fees which reflect the true cost of administration. However, we are wary of ever increasing fees which are really just ways to raise additional money for the government. Agencies should be required to justify increases by demonstrating the actual cost of administration.

Question 4. [Should] fees [be used] to promote diligent development of mining claims versus alternatives such as assessment work?

Answer. We believe the current system of annual labor and relocation by rival locators does a good job of promoting diligent development. High fees will eliminate individuals and small companies from hard minerals exploration and development. Payments in lieu of assessment work make no sense at all as a diligent development provision. They do nothing to advance development and only promote high stakes speculation by people with big checkbooks.

Question 5. [What is] the appropriate level of a surface use fee to provide a fair return for use of federal lands?

Answer. The value of surface use is generally small in comparison to monies expended in developing a mineral deposit. A fee could be anything from a nominal amount to fair market value of the surface. The present system provides a fair return for use of public lands when you consider the value added by the miner in discovering and developing a mineral deposit.

ROYALTY SHARING

We have not yet developed a position with respect to sharing of royalty revenues. We will be happy to respond on that issue in the future.

Senator **Bumpers**. Thank you.

Mr. Goerold.

STATEMENT OF DR. W. THOMAS GOEROLD, CHIEF ECONOMIST, ENERGY AND MINERAL RESOURCES, THE WILDERNESS SOCIETY, DENVER, CO

Dr. **Goerold**. Thank you, Mr. Chairman and members of the committee. I am Tom Goerold. My academic background includes a masters degree in economic geology and a doctorate in mineral economics. I have worked for several mining firms and have practical experience with staking hardrock mineral claims. I have staked claims and supervised drilling for minerals on those claims. I am currently the chief economist for energy and mineral resources for The Wilderness Society. My organization has not had the opportunity to comment on this legislation except for testimony submitted for the previous hearing record. So, I appreciate the opportunity for my appearance before you today.

The current mining law enacted in 1872 essentially relinquishes all Federal Government claim to hardrock minerals found on Federal lands, as well as the land that contains the minerals to the discoverer. There is no accurate data with which to estimate the total cost of this giveaway. I hesitate to venture into this ground with a lack of accurate data. Nevertheless, I have been encouraged to do so.

With that caveat constantly kept in mind, I would like to say that this finders keepers attitude may be costing the taxpayers well into the hundreds of millions of dollars annually. Based on crude estimates from the most current data from the U.S. Bureau of Mines, approximately $11 billion worth of hardrock minerals were extracted in the U.S. during 1988. Without going through the mechanics of this sort of estimation, if we apply an 8 or a 12.5 percent royalty, we can expect somewhere from $500 million to $760 million worth of royalty revenues from this royalty application.

Now, another admittedly crude method of looking at sort of order of magnitude estimates is to look at the total value of the six largest hardrock mineral commodity productions. These commodities are copper, gold, lead, magnesium, molybdenum and silver, according to the Bureau of Mines. The large majority of production of these minerals occurred in the Federal lands dominated Western States. Making again a crude assumption that 75 percent of this production was mined from Federal lands and assuming a 10 percent dropout of companies due to the imposition of a royalty, applying a 12.5 or 8 percent royalty to these six minerals alone would raise from approximately $400 million to $650 million annually.

An additional subsidy given to mining firms is the free use of the surface rights of the Federal land during both mineral exploration and production. Imposing a fee of $1,000 per claim, approximately $50 an acre, would raise as much as $600 million annually even if half of all 1.2 million mining claims in the country were abandoned as a result of this.

Applying a system of escalating land rental payments to mineral claims paid to the Treasury instead of the current wasteful practice of requiring $100 worth of assessment work would not only raise significant revenues, but would also avoid the pointless environmental destruction and contribute to diligent exploration and production of hardrock minerals on Federal land.

Hardrock mineral producers claim that there is a fundamental difference between hardrock and leasable minerals. Yet, the Office of Technology Assessment has stated—and if I may quote from a 1979 report of theirs—"The division of those minerals that are generally leasable and those that are generally locatable is more a matter of history than geology. The types of deposits being explored for and developed today offer even less support for a distinction between locatable and leasable minerals based on geologic characteristics or on any associated difficulty of discovery."

Finally, the OTA report recommends—again I am quoting—"If there is no geologic or economic reason for the distinction between leasable and locatable minerals, perhaps they should be combined under a single disposal system whether that system be a location system, a leasing system or some other system." And further quoting, "Two separate systems inevitably create confusion, require more administrative machinery and raise coordination problems, even when there is a clear division between them."

Current domestic hardrock mineral producers sometimes claim that paying for Federal minerals would be so burdensome that it would force a significant portion of them out of business. Again, I must say that I have not done a thorough examination of this, as apparently no one else has. Mr. Alfers here has certainly done an apparently thorough examination of a couple of instances. However, a cursory examination of the evidence of the financial health of the leasable minerals industries does not reveal a host of companies in serious financial trouble.

Moreover, miners of hardrock minerals have a long history of routinely paying royalties and rental payments when the same minerals are found on State and private lands. And as we have gone into here, we have also seen the record on acquired lands of where royalties are paid for extraction of minerals on acquired Federal lands.

The Wilderness Society commends the fundamental shift in direction proposed by Senator Bumpers' legislation that recognizes the costs, as well as the benefits, of mining and apportions more of the cost to the primary beneficiaries of mining, the mine operators. The Mining Law of 1872 implicitly assumes that mining is the highest and best use of any Federal land and that the only requirement for a valid mining claim is that it contain valuable minerals. This provision is particularly outmoded in light of the other significant values of Federal lands that may outweigh all mining benefits and may permanently be lost as a result of mining.

My written testimony explains The Wilderness Society's on the various types of royalties that I was asked to comment on. My organization's position is basically that, except for Federal land subject to the 1872 Mining Law, it is very likely that any mineral production from any other lands would pay a royalty to the mineral owners. Thus, it is a normal business cost for most mine operators. Imposition of a royalty for extraction for Federally owned minerals would remove the current subsidy that encourages production on Federal lands in preference to all other mineral lands. Because of the prevalence, ease of administration and extensive government experience with gross revenue royalties, The Wilderness Society believes that this should be the type of royalty used for hardrock mineral production.

I was further asked to comment on disposition of fees and royalties from this or other legislation, and basically I would like to say that government revenues from hardrock mining activities should be split 50/50 with the Federal Government and the State confining the mining activity again bowing to the analogy with the leasable mineral system. Most or all of the royalties, surface use fees, claim administration fees and land use fees collected from hardrock mining activities should be earmarked for several specific purposes.

One would be payment for the administration of a system.

Two would be a contribution of State and Federal abandoned mining reclamation funds.

Three would be dedicated to the Federal Land Management Agency to be used only for increased monitoring of mining sites and mitigation of negative impacts of past and present mining activities, including such sites as are now noted under Superfund, RCRA and CRCLA legislation.

Four, the remainder of the Federal share should be deposited in the land and water conservation fund for activities such as purchase of incompatible inholdings and dedicated Federal lands such as wilderness areas, recreation areas, and new or existing national parks, as well as the purchase of other lands to be used in the public interest.

And five, the remainder of the State share should be used for monitoring historical and current mining sites, as well as the mitigation of negative hardrock mining activities throughout the State, and possibly a community assistance fund for retraining workers laid off as a result of mines closing because of changes in the mining law or other reasons.

Finally, in conclusion, a major reform of the 1872 Mining Law is long overdue. As part of this process, the extensive subsidies that the hardrock mining industry has enjoyed for 118 years should be eliminated. These subsidies not only result in major losses to the Treasury, they also provide incentives to engage in widespread environmental destruction with little or no Federal control.

The Wilderness Society recommends that a new mining law reflect the principle that hardrock mining on public lands should not be subsidized relative to other minerals or other lands. Hardrock miners should be charged administration fees, land use fees, and be required to pay a royalty on the gross revenues of mineral production.

Thank you.

[The prepared statement of Dr. Goerold follows:]

Prepared Statement of Dr. W. Thomas Goerold, Chief Economist, Energy and Mineral Resources, The Wilderness Society, Denver, CO

Mr. Chairman and members of the Committee, I am Tom Goerold. My academic background includes an M.S. in Economic Geology and a Ph.D. in Mineral Economics. I have been employed by several mining firms, spending much of my time exploring for base and precious metals in the western United States. During this time I have staked claims under provisions of the Mining Law of 1872 and supervised drilling on those claims. For the past four years I have worked for The Wilderness Society conducting energy and mineral assessments and regional economic investigations. The Wilderness Society, with a membership of almost 400,000, is dedicated to conservation and enlightened stewardship of our public lands. I appreciate this opportunity to discuss one of the foremost issues in public lands management—hardrock mining on federal lands. My testimony is in support of the royalty and fees provisions of S. 1126, provided that some of these provisions are strengthened.

INTRODUCTION

The Mining Law of 1872 conveys to the discoverer of certain valuable mineral deposits (referred to as hardrock or locatable minerals) the entire value of that deposit and free use of the land, subject only to the corporate income tax applied to all business enterprises. When the law was written in the late 19th century, it was felt that the national interest was best served by encouraging the development of the western frontier. Many of that era's land disposal laws were enacted as an inducement to potential settlers. Land was awarded to enterprising individuals or businesses in return for activities that were deemed in the national interest. With the exception of the Mining Law of 1872, all of these land disposal laws have long since been superseded.

SPECIAL PROPERTIES OF HARDROCK MINING AND MINERALS

Hardrock mineral miners maintain that there is still a fundamental difference between hardrock minerals production and other businesses, as well as between hardrock minerals firms and other mineral producers that pay land rental and royalty fees to the Federal Government for use of publicly owned resources. Contrary to industry claims, these purported distinctions do not justify the privileged treatment accorded producers of hardrock minerals. The Office of Technology Assessment supports this view. The OTA believes that the distinctions between leasable (generally energy and chemical minerals requiring government permission and payment of lease and royalty fees) and locatable minerals are more artificial than real.

The division between those minerals that are generally leasable and those that are generally locatable is more a matter of history than of geology. . . . The types of deposits being explored for and developed today offer even less support for a distinction between locatable and leasable minerals based on geologic characteristics or on any associated difficulty of discovery. . . . (OTA, 1979, p. 105).

The OTA report goes on to discount the fundamental differences claimed between leasable and locatable minerals based on differences in the expense of processing and fabrication. Ultimately the report concludes, "If there is no geologic or economic reason for the distinction between leasable and locatable minerals, perhaps they should be combined under a single disposal system, whether that system be a location system, a leasing system, or some other system. Two separate systems inevitably create confusion, require more administrative machinery, and raise coordination problems, even when there is a clear division between them (OTA, 1979, p. 105).

Current domestic hardrock mineral producers sometimes claim that paying for federal minerals would be so burdensome that it would force a significant portion of them out of business. A cursory examination of the evidence does not support these claims. Producers of leasable minerals found on federal lands have paid royalties and land rentals since 1920 and no one questions the health of these industries. Moreover, miners of hardrock minerals have a long history of routinely paying royalties and rental payments when these same minerals are found on state and private lands. Some federal lands not governed by the Mining Law of 1872 charge royalties for production of locatable minerals. It is only the fact that these particular minerals are found on federal land subject to the Mining Law of 1872 that grants miners the unchallenged and free use of the land and royalty-free production of the hardrock minerals.

RENTAL FEES

If we accept the fact that the Mining Law of 1872 needs revision, what are the goals that a new mining law should contain? The OTA report identifies the objective of an appropriate mineral disposal system.

Regulations on hardrock mining should ensure an equitable and efficient allocation of the costs and benefits of hardrock mining on federal lands (OTA, 1979, p. 148). S. 1126 has proposed a number of fees and requirements that meet this objective, including the submission of an exploration plan, and application for Mineral Patent before mining. Before approval of mining operations the following criteria must be met:

a. Proof of economically viable hardrock mineral deposit;

b. Filing of a mining and reclamation plan for the deposit;

c. Approval of the mining and reclamation plan by the Secretary of the Interior or the Secretary of Agriculture subject to conformance of the plan with applicable laws and land and resource management plans;

d. A Mineral Patent granting rights only to hardrock minerals on the claim;

e. An overriding royalty to the U.S. Treasury of 8 percent of the value of hardrock minerals produced from the claim; and

f. A prohibition on the non-mineral uses of the claim covered by Mineral Patent.

The Wilderness Society commends the fundamental shift in direction proposed by Senator Bumpers' legislation that recognizes the costs as well as the benefits of mining, and apportions more of the costs to the primary beneficiaries of mining—the mine operators. The Mining Law of 1872 implicitly assumes that mining is the highest and best use of any federal land and that the only requirement for a valid mining claim is that it contains valuable minerals. This provision is particularly outmoded in light of the other significant values of federal land that may outweigh all mining benefits and may be permanently lost as a result of mining.

Specifically, The Society supports provisions (a) and (c) above; requiring the submission of an exploration plan and recognizing the importance of competing uses on federal lands by allowing denial of hardrock mining by the Secretary if it is not compatible with land and resource management plans. We believe that this approval requirement for both the exploration and the reclamation and mining plans is of utmost importance for effective federal land management planning.

The trend in the Congress for the past two decades has been to demand careful comprehensive planning for management of the public lands. FLPMA (Federal and Policy and Management Act) and NFMA (National Forest Management Act) are two such statutes. Yet the 1872 Mining Law cannot be controlled or modified by these planning requirements.

We feel that the approval provision should be strengthened to assign the Secretary not only with approval discretion but also to charge him with the responsibility of protecting the private and public resources that may be impacted by mining. Approval of exploration and the mining and reclamation plans must be contingent on the protection of these resources. This action will bring hardrock mining on federal lands within the control of the comprehensive land plans of federal agencies.

Another important stipulation in the proposed legislation is the explicit limitation of the property rights granted by Mineral Patents to the hardrock minerals on the claim. This should help to limit some of the land tenure abuses that have plagued the Mining Law of 1872 ever since its inception.

One aspect of S. 1126 that concerns The Wilderness Society is the diligence requirements. Some of the most widespread and environmentally destructive activities associated with the current Mining Law occur when miners indiscriminately bulldoze and alter the land in order to perform the $100 worth of annual labor required for claim retention. The national interest would be better served if instead of a labor requirement as proof of diligence, the claimants would be subject to land rental fees that more accurately reflect the opportunity costs to the government of ceding use of the land to the claimant during the exploration process. Elimination of the assessment requirement with the substitution of progressively more stringent annual land rental fees would be an equitable way to avoid unnecessary environmental destruction due to assessment work as well as raise revenue for the Treasury to cover the cost of opportunities foregone as a result of mining.

Surface use fees for mining should be set at the fair market value of the land to truly reflect the economic costs borne by the government. S. 1126 addresses payments for land use, but fails to state the criteria for establishing the surface occupancy fee. We feel that in order for mining to continue in the national interest it should not receive any federal subsidies. In keeping with this approach, the charge for mining use of the land should be based on fair market value.

ROYALTIES

In its most common usage, a royalty is a payment to the owner of the property rights of a commodity paid by the person or business that extracts and sells the commodity. As explained by the current director of the U.S. Bureau of Mines, T S Ary (1989), the concept of royalties dates back at least to the Middle Ages. The discoverer of a mineral was allowed to claim a portion of the commodity for himself but also had to set aside a claim and a share of the production for the king in recognition of the government's ownership of the minerals. Apportionment of the value of energy and mineral operations by royalties among various owners and operators continues to the present. For example, private, state, and federal land owners that lease to oil and gas operators commonly receive a fee for rental of their land as well as a royalty tied to the value of the minerals produced (usually 12.5 percent). Hardrock minerals operations on state and private (or fee) lands also commonly have royalty payment provisions.

Royalty rate information for mining on private lands is often considered proprietary business information and therefore is not disclosed. However, royalty rates for hardrock minerals produced from state lands vary considerably depending on the state and sometimes on site-specific conditions. A look at some selected hardrock minerals shows royalties ranging from $0.20 to $0.64 per ton of gypsum ore, $2.50 to $3.25 per ton of talc ore, 6.25 to 15 percent of gross revenues of uranium production, and from 8 to 12.5 percent of either net smelter return or net profit on gold production from state lands (Bourne, 1990). There are also federal land parcels not subject to the 1872 Mining Law where miners pay royalties for extraction of hardrock minerals—4.5 percent royalty for copper extraction in Minnesota, 5 percent royalty for lead mining in Missouri, 4 percent royalty for iron production in Minnesota, and a 5.7 percent royalty for zinc mining in Illinois (Bourne, 1990).

THE FEDERAL GOVERNMENT AS A MINERAL RIGHTS OWNER

The examples above show that royalties are routinely paid to state and private owners of mineral rights, and even in some cases to the Federal Government. If minerals on federal lands were owned by any other party, the payment of a royalty would be the rule rather than the exception. Royalties are simply a payment to the government for allowing miners to extract and sell minerals obtained from federal lands.

A common appeal from businesses in the United States is to create a "level playing field" among competitors and nations. Yet, the granting of free mineral and land-use rights to a discoverer on federal land amounts to a subsidy to hardrock mineral producers relative to other mineral commodities and other landowners. A case can be made for the importance of hardrock mineral mining to the local and national economies, but are these industries more important than oil and gas producers, or operators mining and selling coal, sulfur, potash, or any of the leasable or saleable minerals? Do hardrock miners on federal lands have more importance than automobile manufacturers, retail store owners, or any other business not eligible for government subsidies? Are hardrock miners producing minerals from federal lands more important than these same producers mining state or private lands? The Mining Law of 1872 has created and perpetuated these inequities. A royalty should be imposed, if for no other reason than to produce a level playing field. A royalty would also provide taxpayers with reasonable compensation for hardrock minerals produced from federal lands.

THE FEDERAL GOVERNMENT AS AN INCOME TAX COLLECTOR

One argument advanced by mining interests against the imposition of royalties for federal hardrock minerals is that the Federal Government already taxes the profits of these companies. This is an misleading argument—most non-mineral businesses do not obtain the inputs to their firms from the Federal Government at no cost, yet virtually all pay a federal income tax. Royalty- and rental-free mineral operations are analogous to a gift of steel and rubber to automobile manufacturers, or free office rental to an accounting firm, courtesy of the U.S. Government. Federal hardrock mineral producers should be subject to income tax, royalty, and land rental payments; they should be treated similarly to other mineral and business enterprises, unless it can be demonstrated that they deserve a subsidy.

EVALUATION OF DIFFERENT ROYALTY SCHEMES

The Wilderness Society believes that a royalty paid to the Federal Government represents an equitable payment for the rights to mine publicly owned minerals. As such, a royalty for extraction of federal locatable minerals should be considered a cost for doing business, just as it is for hardrock minerals mined on lands owned by any other entity. A payment for the rights to mine can and should be separated from taxes paid to the Federal Government for the profits generated by the mining activity. Using this approach places mining on Federal lands on the same footing as mining hardrock minerals from any other lands and eliminates much of the current subsidization of locatable minerals extraction.

S. 1126 ROYALTY PROVISIONS

Senator Bumpers' bill calls for an overriding royalty of 8 percent of the value of hardrock mineral production. The Wilderness Society believes that the advantages of this type of royalty, including relative ease of administration and valuation, coupled with the extensive collection and enforcement experience by the Minerals Management Service with similar energy royalties, more than outweigh any economic disadvantages of this proposal. The royalty is based on gross income or gross revenues, which is one of the easiest royalty schemes to administer. Valuation criteria for gross income derived from the mining process are already established by the IRS. The IRS regulations define the point at which mining is complete and the milling, beneficiation, and other further processing steps that add value to the product are initiated. In addition, this type of royalty has been commonly used in the mining industry and is related to the current government experience with petroleum and other leasable minerals.

One criticism of this type of royalty is that it could cause an otherwise profitable mining operation to become unprofitable. However, if this same mining operation was located on state or private lands the mining operation would probably be facing this or some other type of royalty. Therefore, because there is no royalty on federal lands, the mine operators have an incentive to mine on federal lands instead of lands owned by other entities. We see no reason to subsidize mining on federal lands that have less government control and regulation than state or private lands.

ALTERNATIVE ROYALTY BASED ON NET SMELTER RETURN

Presumably the advantage of using this type of system is in the ease of valuation of the product. The use of this method has been relatively widespread because, until recently, custom smelters or mills were commonly used to convert ore to finished products. However, the current predominance of vertically integrated mining firms (with their own milling operations), coupled with the decline in the number of custom mills and lack of smelting required for some minerals, indicates that this method may be very difficult to implement for many mineral deposits. A closer look at the Net Smelter Return method of collecting royalties also shows that there are other valuation difficulties including commingling of ores, and other problems (Ary, 1989).

ALTERNATIVE ROYALTY BASED ON GROSS INCOME FOR DEPLETION PURPOSES

This proposal, as explained by Dr. Sandra Blackstone, would base royalties on the gross income (for purposes of depletion calculation) of mineral operations subject to a maximum percentage of taxable income. Dr. Blackstone has helped to shape the definitions of the valuation criteria and to explain the mining company incentives with regard to the gross income for depletion purposes. Because mineral operators already routinely calculate taxable income and gross income to measure depletion deductions for the IRS, and because the mining firms have an incentive to maximize their depletion deduction, Dr. Blackstone argues that her royalty proposal would add little additional administrative burden to the miners or the government.

This approach is very similar to the gross royalty proposal presented above except that Dr. Blackstone's initiative would not charge any royalty during years when there was no net or taxable income. This proposal is at odds with The Wilderness Society's position. We believe that a royalty on locatable minerals extracted from federal lands should be considered a cost of doing business, just as it is with leasable minerals and hardrock minerals on state and private lands. Therefore, The Wilderness Society supports the levying of a well defined gross income royalty which is not subject to limitation by taxable income criteria.

ALTERNATIVE BROAD-BASE, LOW-RATE ROYALTY IMPOSED AT POINT OF FIRST ARMS-LENGTH SALE

This royalty proposal does not explain what criteria would determine the royalty amount. Apparently the royalty would be a relatively small percentage applied to a relatively large measure of mineral value such as gross revenues (before deductions). Other than the low-royalty rate provision, this proposal does not differ much from the measure in S. 1126.

The major difference between this proposal and others presented above is the first arms-length sale provision. Presumably the arms-length requirement was used to ensure that the value of minerals extracted from federal lands is accurately determined (by a transaction of the mineral extracting firm with another firm) and therefore the Treasury receives a fair royalty. Some might argue that values of raw minerals assigned by vertically integrated mining firms as they transfer them internally may not accurately reflect the fair market value of the minerals.

Although the valuation would seem to be easier and more accurate than other proposals, this policy has at least one large disadvantage. The problem with this approach is the assumption that all mineral extractors would sell their products at the same stage of production. The mining and milling process incorporates a number of stages of production, each imparting additional value to the product. To be fair, the royalty base used for each mineral and each mine should be as uniform as possible. A more refined mineral product would tend to have a higher value than an earlier stage product and would therefore have a larger royalty charge. This higher charge would not only reflect the value of the mineral extracted, but the increasing value of the milling and refining stages. To preclude valuation problems of this type, The Wilderness Society believes that a royalty on gross income on the mined product as defined by IRS code should be used.

ALTERNATIVE ROYALTIES FOR DIFFERENT MINERAL GROUPS

Underlying this proposal is the assumption that different minerals have different profitability characteristics. While there may be some relationships between individual minerals and profits, there is also a great deal of variation in profitability among mines producing the same mineral. That is, there are both high-cost and low-cost gold mines. Applying a high royalty to a low-profit gold mine does not necessarily make more sense than applying a low royalty to a high-profit lead mine. The Wilderness Society is not necessarily opposed to different royalty rates for different minerals, and recognizes the large differences in profitability among mines producing the same minerals. However, we believe that a royalty is a normal business cost and should be paid regardless of profitability.

THE WILDERNESS SOCIETY ROYALTY RECOMMENDATIONS

As stated above, The Wilderness Society recommends that the Federal Government be compensated for ownership of the locatable minerals separate from the government's role as an income tax collector. That is, a royalty based on the gross revenues of mineral production (as defined by the IRS) should be imposed to eliminate the current subsidy of federal hardrock mining. Mineral activity, as is the case with all business activity in the U.S., would also continue to be subject to the corporate income tax. A royalty rate of 12.5 percent on gross revenues would place hardrock minerals in the same category as the energy minerals found on federal land and would also raise significant revenue for the Treasury.

REVENUES FROM AND DISPOSITION OF HARDROCK MINERAL FEES

There are no definitive statistics describing the total value or types of mineral production from the 1.2 million unpatented mining claims in the United States. This lack of information makes it difficult to estimate the economic and fiscal impacts of any potential royalties applied to federal hardrock minerals production. Despite the lack of well-defined data, The Wilderness Society has estimated the potential revenues that a royalty on the gross revenues on federal hardrock minerals would produce, using two methods. According to the U.S. Bureau of Mines total nonfuel minerals production in the U.S. totalled $30.02 billion in 1988 (USBM, 1990). Subtracting the value of the leasable and saleable minerals from this total yields an approximate value of national hardrock mineral production from all lands of $11.3 billion. Assuming that 60 percent of hardrock minerals are produced from unpatented mining claims (based on the preponderance of mining activity on the western states containing large percentages of federal lands), leaves a total value of production of $6.7 billion. Further assuming that 10 percent of hardrock mineral production would cease as a result of the imposition of the royalty, total revenues from locatable minerals extracted from federal lands would amount to $6.1 billion in 1988.

Using the $6.1 billion as a gross revenue basis, the application of a 12.5 percent royalty would have raised $760 million when applied to 1988 production. Similarly, the imposition of an 8 percent royalty, as proposed by Senator Bumpers, would have resulted in a flow of approximately $490 million to the Treasury.

An alternative method of calculating just a portion of potential royalty revenues uses the reported values for production of six hardrock mineral commodities with the largest reported production values. Copper, gold, lead, magnesium, molybdenum, and silver have reported production values of $8.0 billion in 1988 (USBM, 1990). As reported by the Bureau of Mines, western states produced virtually all of the national output of these commodities. If we assume that 75 percent of all output of these minerals is derived from unpatented claims and that production would have declined by 10 percent due to the royalty, the resulting royalty base amounts to about $5.2 billion. A 12.5 percent royalty would have produced revenues of $650 million, and an 8 percent royalty about $416 million.

If a series of escalating rental fees is imposed on mineral claimholders as an alternative to the labor assessment requirement the policy would result in both a reduction in environmentally destructive activities and an increase in payments to the Treasury. Assuming a $1000 per claim initial annual land rental payment ($50 per acre) would raise about $600 million, even if 50 percent of the 1.2 million mineral claims were abandoned. If land rental payments were structured to increase by $10/acre/year, the policy would encourage exploration diligence and help separate serious claimholders from speculative or non-mineral use claimholders. An additional administrative charge of $100 per claim per year should be charged to cover the costs of administering the new Mining Law.

Government revenues from hardrock mining activities should be split 50/50 with the Federal Government and the state containing the mining activity, similar to the split used with leasable mineral fees. Most or all of the royalties, surface use fees, claim administration fees, and land use fees collected from hardrock mining activity should be earmarked for several specific purposes:

1. Payment for the state and federal costs of the hardrock mineral administration system;
2. Contribution to the state and federal abandoned mining reclamation funds;
3. Dedicated to the federal land management agency to be used only for increased monitoring of mining sites and mitigation of negative impacts of past and present mining activities (including Superfund, RCRA, and CRCLA sites resulting from mining activity);
4. The remainder of the federal share to be deposited in the Land and Water Conservation Fund for activities such as purchase of incompatible inholdings in dedicated federal lands such as Wilderness Areas, Recreation Areas, and new or existing National Parks, as well as the purchase of other lands to be used for the public interest; and
5. The remainder of the state share to be used for monitoring historical and current mining sites, as well as mitigation of negative hardrock mining activities throughout the state, and possibly a community assistance fund for retraining workers laid off as a result of mines closing because of changes in the Mining Law or other reasons.

One very important change that should be made in the administration of public lands mining is to require the mining companies to report the minerals produced from unpatented claims. Measurement of the unpatented claims share of mine production may be a challenge if mines are composed of a patchwork of patented and unpatented claims, as well as state and private lands. However, mineral producers must already calculate these values to satisfy the different federal, state, and private royalty holders and for tax purposes. Collection and analysis of these data by the Bureau of Land Management or the U.S. Bureau of Mines would allow for accurate analysis of policies dealing with minerals found on federal lands.

CONCLUSIONS

A major reform of the 1872 Mining Law is long overdue. As a part of this process the extensive subsidies that the hardrock mining industry has enjoyed for 118 years should be eliminated. These subsidies not only result in major losses to the Treasury, they also provide incentives to engage in widespread environmental destruction—with little or no federal control.

The Wilderness Society recommends that a new mining law reflect the principle that hardrock mining on public lands should not be subsidized relative to other minerals or other lands. Hardrock miners should be charged administration fees, land use fees, and be required to pay a royalty on the gross revenues of mineral production.

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Senator BUMPERS. Thank you, Mr. Goerold.

Mr. Hendricks.

STATEMENT OF THOMAS S. HENDRICKS, PRESIDENT, HENDRICKS MINING CO., INC., NEDERLAND, CO

Mr. HENDRICKS. Senator Bumpers and Senator McClure, I have submitted a written statement that I would like to be accepted into the record.

Senator BUMPERS. Without objection.

Mr. HENDRICKS. I have been an active hardrock miner for the past 23 years. Having grown up in Colorado, I had the opportunity to work for seven mining companies throughout high school and college prior to starting Hendricks Mining Company as a small pick and shovel operation in 1973. Hendricks Mining Company has grown to become a modern, small underground gold mine operation, and we continue to improve our surface plant facilities, equipment and environmental systems. We have experienced many boom and bust cycles while continuing to expand our multi-vein system and reserve base. As a privately held small operation, Hendricks Mining Company often relies on bank debt financing to pay our bills. The Cross Gold Mine operation is located on 36 patented claims, and we have staked and diligently completed assessment work on 30 unpatented claims.

Since Hendricks Mining Company was founded in 1973, we have continuously made a strong commitment to environmental issues. We provide educational working tours each year to nearly 500 people from around the world.

I have spent a considerable amount of time working in all phases of the underground operation and in running our small mill. In addition, I head up the Small Miners Subcommittee of the Colorado Mining Association, and for the past 5 years we have held quarterly meetings throughout historic mining districts in Colorado. I also have been president of the Boulder County Metal Mining Association for the past 12 years, and this association has represented small mining interests since 1894.

I am addressing the questions raised in the letter by Senator Bingaman.

Number one, under the royalty. Small miners rarely grant more than a maximum 3.5 percent net smelter royalty when attempting to lease patented property on which considerable exploration work has previously taken place and there exists sufficient knowledge of a vein or vein systems to further warrant additional exploration expenditures. Properties with no known mineralization command little or no royalty. In most cases net profit sharing is common. My company was unable to attract adequate exploration/development financing from the period 1974 through 1987 on the Cross Gold Mine because we had a 10 percent net smelter royalty. This was on 15 patented claims with known ore bodies which saw considerable expenditures by the owning family between 1928 and 1939.

I have attached as exhibit 1 the definition of an NSR and charted how it works. It is critical to note that an NSR is a gross royalty. Mills often recover 90 percent of the contained values and smelters historically take 10 percent for smelter deductions before smelter treatment charges. Permitting, acquisition costs, environmental costs, exploration, development and mining costs, trucking to the mill, milling costs and milling losses are not able to be deducted from the net smelter return royalty.

Number two, the royalty provision of S. 1126 at 8 percent NSR would take way any incentive for small miners to prospect or explore for new minerals on unpatented claims and prevent the ability to attract investment dollars. The only fair approach would be a production tax based on taxable income from producing unpatented claims after allowing for deductions.

Remember, producers of precious metals cannot raise metal prices to the consuming public on a production royalty as is the case with oil, gas and coal. Small producing mines have considerably higher production costs than large mines. Underground vein mines differ from pit operations, and different minerals require different mining and milling techniques with extremely different cost scenarios. Ore to concentrate ratios can often vary 2 to 1 to 100 to 1. And this is critical in a net smelter return royalty.

Successful producing mines already pay Federal and State income taxes, property taxes, sales taxes, employment taxes and producing mines metalliferous production taxes to the local county where the mines operate. Very few people I talk to know that there is a metalliferous tax that is imposed by most counties in most States in the United States. Although successful gold mines often report cash production costs in the $180 to $250 per ounce range, the total costs after acquisition, permitting, exploration, development and plant construction often place mines in the 3 to 7 percent income bracket.

Number 3A, there is no advantage to placing an NSR on unpatented claims, and my position is to strike this proposal from any proposed 1872 Mining Law change.

Number B, I would consider discussing the terms for a fair tax based on a fixed percentage of taxable income, provided it is a fair tax. This leaves the incentive to explore for new minerals and will enable the public to share in a successful producer on Federal lands. A small percent of something is better than a large percent of nothing.

Number C, the diversity and ability to set specific, well-understood standards would make the concept of a broad base, low rate royalty imposed at the point of the first arm's length sale difficult to understand and implement on specific properties and sales transactions.

Number D, the imposition of a different royalty for different groups of minerals would require constant monitoring of metal prices, sliding scales, supply and demand fluctuations, and would be extremely complicated and costly to administer.

Number 4, if a small, fair portion of taxable income becomes a part of the new mining law, it should be administered by the Internal Revenue Service—and I agree with Sandy Blackstone on this point—through a special section on your tax return. This would eliminate the new costly bureaucracy to administer funds. Enforcement issues should be handled by each State's existing mined land reclamation division who are well-trained and staffed. It is extremely important to remember when considering any new tax to the mining industry that mining companies reinvest profits back into the industry, as well as assuring their investors an equitable return on high risk capital.

On the fee issue, the fee provision of S. 1126 would be difficult for small miners and large mining companies to maintain. We currently pay annual filing fees both to the Federal and county governments of $5 per claim. In our case, we maintain 30 unpatented claims, which is quite small by industry standard. The $100 holding fee per claim, $5 use fee per acre and the $50 per acre diligence fee would increase our costs to maintain these claims by 50 times under S. 1126. Over the years we have found ourselves struggling to fully complete our current annual assessment requirement when cash flow is tight or budgets are limited. A 50 times increase would be devastating. Under the proposed changes, we would have 3 years to convert our existing unpatented claims. This would cost our company $150,000 a year with the 30 claims that we have. It would be simple in our case. We would just drop them.

Funds from any possible new holding fees or use fees and/or new tax revenue should be dedicated primarily to a fund for abandoned mine land reclamation, old mine closings with owner consent, and an industry and government joint effort on cleaning up and remilling mine dumps and tailings that are proved to be a threat to the environment.

In summary, the United States mineral industry is subject to the most strict environmental regulations in the world. We currently are permitted by the following agencies: State Health Department, the Environmental Protection Agency, the Army Corps of Engineers, and the State Mined Land Reclamation Division. Detailed, complex engineering and permit applications are carefully reviewed by each one of these. Full public input is allowed before permits are allowed before permits are approved, and cash bonding is also required for reclamation. You can imagine being a little company what it is like to get a cash bond. Bonding companies do not give them to you.

Furthermore, United States mines are closely inspected and regulated by the Mine Safety and Health Administration and by State Bureau of Mines. Local counties also have zoning laws which must be conformed to. The United States Mining Law of 1872 is made up of hundreds of statutes, regulations and court decisions that have modified the law from its inception. It is not an archaic law that has never had modification.

If there is no incentive to find new minerals on domestic ground, countries like the Soviet Union and emerging third world countries will bury us economically by the year 2000. America cannot afford to become totally dependent on foreign minerals that all of use in our daily lives. The current situation in Kuwait addresses this issue very well.

It is time that we in America quit fighting and litigating over self-interests and work together through our free enterprise system to allow for a strong mining industry in combination with strong environmental programs through continued use of modern technology, education and open and constructive dialogue. The 1872 Mining Law has been called antiquated, but so is our Constitution, and both continue to serve the country very well.

I have two exhibits. When I put this together, all of a sudden it dawned on me that I do not know why I am in the business because what I have done here is taken a little bit higher grade gold ore than historically has been mined in the State of Colorado underground and a grade of silver, and I have attached today's prices on both, and given the fact that a mill only recovers 90 percent of this material and you are left with—in this case, I used a 25 to 1 concentration ratio. When you take the trucking to the smelter, which you can deduct as part of an NSR, and you taking smelting costs—and in this case, I used those which we just received from Cominco up at Trail, British Columbia—you can see what happens. When you start out with $118.75 gold/silver ore, after milling and smelting and smelter costs, you are left with $84.40.

Now, keep in mind I said down below here that now that you have to figure out how to pay your mining costs, trucking costs and milling costs. Well, if you are left with $84.40 per ton, milling costs right now in Colorado at a custom mill are between $40 and $60 per ton. You do not have enough money left over to pay your mining costs, let alone a return on investment, acquisition costs, permitting, bonding, environmental compliance, exploration, development costs, plant construction and so on. So, all I can say is you got to really love the business.

[Laughter.]

Mr. **Hendricks**. And lastly I have attached an exhibit that shows how much land mining really uses. We hear about this horrible monster out in the west that is consuming all this land. Of the 2.3 billion acres in the United States, mining uses less than 6 million acres, which is three-tenths of 1 percent of the land area in the United States to produce all the minerals since 1776. One-third of the disturbed area has been reclaimed by man or healed by nature.

And one last point. I called the Bureau of Land Management here in Washington to find out how many unpatented claims we are talking about in America. And the closest figure they could come up with was 1.2 million claims. Well, when I looked at this chart of where farmlands use 1.3 billion acres, public lands use 525 million acres, urban areas use 34.6 million acres, and highways cover 24 million acres, the mining industry occupies a tiny fraction of the lands here in the United States.

Thank you very much.

[The prepared statement of Mr. Hendricks follows:]

Prepared Statement of Thomas S. Hendricks, President, Hendricks Mining Co., Inc., Nederland, CO

I am here today to address this subcommittee on the royalty and fee provisions of S. 1126, a proposed bill to provide for the disposition of hardrock minerals on federal lands and modify the existing 1872 Mining Law.

I have been an active hardrock miner for the past twenty-three years. Having grown up in Colorado, I worked for seven mining companies throughout high school and college prior to starting Hendricks Mining Co. at Caribou, Colorado in 1973 as a one man pick and shovel operation. Hendricks Mining Co. has grown to become a modern, small underground gold mine operation and we continue to improve our surface plant facilities, equipment and environmental systems. We have experienced many boom and bust cycles while continuing to expand our multi-vein reserve base. As a privately held small operation, Hendricks Mining Co. often relies on bank-debt financing to pay our bills. The Cross Gold Mine operation is located on thirty-six patented claims and we have staked and diligently completed assessment work on thirty unpatented claims. Since Hendricks Mining Co. was founded in 1973, we have continuously made a strong commitment to environmental issues. We provide educational-working tours each year to nearly 500 people from around the world. I have spent a considerable amount of time working in all phases of the underground operation and in running our small mill. In addition, I have headed up the Small Miners Subcommittee of the Colorado Mining Association for the past five years and have held quarterly meetings throughout Colorado's historic mining districts. I have also been President of the Boulder County Metal Mining Association for the past twelve years. This association has represented small mining interests in Boulder County since 1894.

ROYALTY

1. Small miners rarely grant more than a maximum 3.5% NSR (net smelter royalty) when attempting to lease patented property on which considerable exploration work has previously taken place and there exists sufficient knowledge of a vein or vein systems to further warrant additional exploration expenditures. Properties with no known mineralization command little or no royalty; in most cases net profit-sharing is common. My company was unable to attract adequate exploration-development financing from the period 1974 through 1987 on the Cross Gold Mine

because we had a +10 NSR. This was on fifteen patented claims with known orebodies which saw considerable expenditures by the owning family between 1928 and 1939. I have attached as Exhibit I the definition of a NSR and charted how it works. It is critical to note that a NSR is a gross royalty. Mills often recover 90% of the contained values and smelters historically take an additional 10% for smelter deductions before smelter treatment charges. Permitting, acquisition costs, environmental costs, exploration, development and mining costs, trucking to the mill, milling costs and milling losses are not able to be deducted from a NSR.

2. The royalty provision of S. 1126 at 8% NSR would take away any incentive to prospect or explore for new minerals on unpatented claims and prevent the ability to attract investment dollars. The only fair approach would be a production tax based on taxable income from producing unpatented claims, after allowing for deductions as defined similarly by the Internal Revenue Tax Code. Remember, producers of precious metals cannot raise metal prices to the consuming public on a production royalty as is the case with oil, gas and coal. Small producing mines have considerably higher production costs than large bulk mines. Underground vein mines differ from pit operations and different minerals require different mining and milling techniques with extremely different cost scenarios. Ore to concentrate ratios can also vary from 2:1 to +100:1. Successful producing mines already pay federal and state income taxes, property taxes, sales taxes, employment taxes and producing mines-metalliferous production tax to the local county where the mine operates. Although successful gold mines often report cash production costs in the $180 to $250 per ounce range, the total costs after acquisition, permitting, exploration, development and plant construction often place mines in the 3% to 7% income bracket.

3. (a) There is no advantage to placing a NSR on unpatented claims and my position is to strike this proposal from any proposed 1872 Mining Law changes.

(b) I would consider discussing the terms for a fair tax based on a fixed percentage of taxable income, provided it is a fair tax. This leaves the incentive to explore for new minerals and will enable the public to share in a successful producer on federal lands. A small percent of something is better than a large percent of nothing.

(c) The diversity and ability to set specific, well understood standards would make the concept of a broad base, low rate royalty imposed at point of first arms length sale difficult to understand and implement on specific properties and sale transactions.

(d) The imposition of a different royalty for different groups of minerals would require constant monitoring of market price, sliding scales, supply and demand fluctuations and would be extremely complicated and costly to administer.

4. If a small, fair portion of taxable income becomes a part of a new mining law, it should be administered by the Internal Revenue Service through a special section on your tax return. This would eliminate a new costly bureaucracy to administer funds. Enforcement issues should be handled by each state's existing Mined Land Reclamation Division who are well trained and staffed. It is extremely important to remember, when considering any new tax to the mining industry, that mining companies reinvest profits back into the industry, as well as assuring their investors an equitable return on high risk capital.

FEES

The fee provision of S. 1126 would be difficult for small miners and large mining companies to maintain. We currently pay annual filing fees both to the federal and county governments of $5 per claim. In our case, we maintain thirty unpatented claims, which is small by industry standard. The $100 holding fee per claim, $5 use fee per acre and the $50 per acre diligence fee would increase our annual costs to maintain these claims by fifty times. Over the years, we have found ourselves struggling to fully complete our current annual assessment requirement when cash flow is tight or budgets are limited. A fifty times increase would be devastating. Under the proposed changes, we would have three years to convert our claims. This would cost our company $150,000 a year with thirty claims.

Funds from any possible new holding fees or use fees and/or new tax revenue should be dedicated primarily to a fund for abandoned mined land reclamation, old mine closings with owner consent and an industry and government joint effort on cleaning up and remilling mine dumps and tailings that are proved to be a threat to the environment.

SUMMARY

The United States mineral industry is subject to the most strict environmental regulations in the world. We currently are permitted by the following agencies: State Health Department, Environmental Protection Agency, the Army Corps of Engineers and the state Mined Land Reclamation Division. Detailed complex engineering and permit applications are carefully reviewed. Full public input is allowed before permits are approved and cash bonding is also required for reclamation. Furthermore, United States mines are closely inspected and regulated by the Mine Safety and Health Administration and by state Bureau of Mines. Local counties also have zoning laws which must be conformed to. The United States Mining Law of 1872 is made up of hundreds of statutes, regulations and court decisions that have modified the law from its inception. If there is no incentive to find new minerals on domestic ground, countries like the Soviet Union and emerging third world countries will bury us economically by the year 2000. America cannot afford to become totally dependent on foreign minerals that all of us use in our daily lives. The current situation in Kuwait addresses this issue very well.

It is time we in America quit fighting and litigating over self-interests and work together through our free enterprise system to allow for a strong mining industry in combination with strong environmental programs through continued use of modern technology, education and open and constructive dialog. The 1872 Mining Law has been called antiquated, but so is our Constitution and both continue to serve our country well.

I can be reached for further questioning and comments at: Hendricks Mining Co., P.O. Box 653-Caribou, Nederland, Colorado 80466, Phone (303) 258-3806 or Mill Office, 3000 North 63rd Street, Boulder, Colorado 80301, Phone (303) 443-1502, Fax (303) 443-6604.

[Exhibit 1]

ARBITRARY UNDERGROUND VEIN MINE ORE FOR REFERENCE

(Costs can vary considerably)

Gold/silver ore at $375 oz. gold & $5 oz. silver
Grade .25 oz/ton gold 5 oz./ton silver = $118.75 ore
Ore = $118.75/ton.

MILL

Mill recovers 90% combined gold and silver (loss—$11.87/ton)
Concentration ratio of ore to concentrate 25:1
.225 oz./ton gold and 4.5 oz./ton silver x 25 = 5.6 oz/ton gold and 112.5 oz/ton silver concentrate
Ore $118.75 ton—$11.87/ton mill loss = $106.88

CONCENTRATE TRUCKING

Trucking from mill to smelter, say $100 per ton/concentrate or $4 per ton on original ore at 25:1
Trucking = $4.00

SMELTER COSTS

$275 per ton of concentrate + deduct 7% of gold & silver
−$11.00 per ton smelter cost on ore
−$7.48 per ton metal content deduction
−$18.48 ÷ $106.88 = 17%

$106.88 ore
−$4.00 trucking to smelter
−$18.48 smelter charges
$84.40 per ton

Milling loss, trucking to smelter and smelting have taken $34.35 per ton or approximately 29% of your gross ore value.

Now, you have to figure out how to pay your mining costs, trucking costs and milling costs. On top of that, you have to then figure on return on investment, acquisition costs, permitting, bonding and environmental compliance, exploration and development costs, and plant construction, provided there are no delays. An additional 8% NSR (royalty) would then equal or exceed 30% of your net profit if the operation was profitable.

Exhibit 2

HOW MUCH LAND DOES MINING USE ?

Total land area mined 1776 to date
One third has been reclaimed

The mining industry has disturbed less than 3/10 of 1% of the land area of the United States to produce all the mineral materials since 1776. One third of the disturbed area has been reclaimed by man or healed by nature.

—— *Of the total land area of the United States 2.3 billion acres .....*

- FARMLANDS USE 1.3 BILLION ACRES
- PUBLIC LANDS USE 525 MILLION ACRES
- URBAN AREAS USES 34.6 MILLION ACRES
- HIGHWAYS COVER 24 MILLION ACRES
- AIRPORTS & RAILROADS COVER 6.5 MILLION ACRES
- MINING USES LESS THAN 6 MILLION ACRES

Senator **Bumpers**. Mr. Hendricks, thank you. Let me ask you just a little bit about your company. When did you go into business?

Mr. **Hendricks**. I started in 1973 and incorporated in September of 1974.

Senator **Bumpers**. I understood you to say something about trying to find capital and you could not find it until 1987 or something like that.

Mr. **Hendricks**. Oh, I found capital over the years, but never sufficient capital to put the mine into a development stage where it would be economic. The only year in our history that we have been economic is in 1980 when gold prices surged up to the $800 range.

If I might address one brief question that was asked earlier, we produced and shipped steadily from 1977 until 1983. The average price during that period for gold that we received was $378 an ounce. When I bought my first dynamite in 1973, I paid $19 a hundredweight. About 2 weeks ago, I bought a load of dynamite and I paid $168 per hundredweight. The question earlier was varying prices and various costs of doing business. Every single thing that I buy for my mining operation goes up, but the one thing that has not gone up is the price of gold.

Senator **Bumpers**. Why do you stay in business if you have only been profitable 1 year since 1974?

Mr. **Hendricks**. Because we have taken a considerable amount of our money and joint venture money to drill a much bigger ore body, and the only way that our mine at the grade of the ore that we have can be economic is to mine at 400 tons a day.

Senator **Bumpers**. Are you publicly held or do you own most of the stock or what?

Mr. **Hendricks**. I own 90 percent of the company. We are a totally private company.

Senator **Bumpers**. How many employees do you have?

Mr. **Hendricks**. Right now one. We had 50 employees in 1980, and at any given time we could have 6 or 20 employees.

Senator **Bumpers**. How many ounces of gold did you mine last year?

Mr. **Hendricks**. Forty-three ounces.

Senator **Bumpers**. At an average sale price of $378 or something like that?

Mr. **Hendricks**. Well, we shipped our production from last year on June prices. When we ship to a smelter, we get paid for the average month's metal prices following the date of delivery. And so, we shipped that shipment on June prices from last year's production which was in the $348 range.

Senator **Bumpers**. Mr. Hendricks, let me say I have the utmost respect for you, particularly as a former small businessman who had plenty of weary, sleepless nights trying to figure out how I was going to meet the payroll, to be quite trite about it.

But on these claims, you said a moment ago that if the administration's proposal of $100 a year per claim, you would just drop yours. Is that correct?

Mr. **Hendricks**. As I understand S. 1126, after it became law, we would have 3 years to select one of two scenarios on what to do with our old claims. And one of this is to pay, as I understand it, $5,000 per claim.

Senator **Bumpers**. Right now, let me ask you this question. The administration has proposed—and we will probably agree to this in the next 3 or 4 weeks. I do not know whether we will or not, but we might. The administration and BLM are proposing that instead of having you going out there to do assessment work—scratching around on a claim and just doing perfunctory work to keep the claim up—they will just let you pay 100 bucks as a holding fee, and you would not have to go in and allege that you had put $100 worth of work on the claim. Do you have any problem with that?

Mr. **Hendricks**. Well, the only problem I have with that is we are in the business to mine, to mill, to produce metals. The reason we do our assessment work is to look for new veins. We do not do it because we have to do the assessment work. And what I am afraid——

Senator **Bumpers**. Let me interrupt you just a moment. I am not suggesting that you not do the assessment work. You would be entitled to do that. Obviously, you would do that before you would try to open a mine or anything on it. And I do not know what the administration's position on that is, but if you actually spent—if you were really assessing a claim, say, of 20 acres, you are going to be out there maybe core drilling or something else.

Mr. **Hendricks**. Right.

Senator **Bumpers**. And it seems to me that if you are doing that on your claim, then of course you would be exempt from this necessity of putting up 100 bucks.

Senator **McClure**. You have the option of doing it one way or the other.

Senator **Bumpers**. You have the option staff tells me. So, if you wanted to go ahead and work your claim honestly, you would have the right to do that.

As you have heard testified to this afternoon, we have 1,200,000 claims out there and I assume most of them are 20 acres apiece at $100 claim.

I will be quite frank with you. One of the goals that I have in mind is to cause people to drop claims. There is no point in people keeping—some of those claims are a lot older than you and me put together, certainly as old as I am, and they have just held them all these years. I do not see any reason for that.

Mr. **Hendricks**. And I have to agree with something that Stan Dempsey brought up. Remember, I am talking from the small miner's point of view.

Oftentimes when somebody drops a claim, somebody picks it up. So, we as small miners, though we are very few in number, and I do not think you would really see a whole lot happen anyway, but if a big company like Newmont should drop a claim, we would be looking to pick it up. And I think in that regard it would help us.

Senator **Bumpers**. Mr. Hendricks, let me say one other thing. I was very impressed by one thing you said in your testimony. You said you would not have any objection to a fair fee or a fair royalty based on profit. And when I think about somebody out there with one employee making that kind of a concession and I think of all the others who have as many as 10,000 to 15,000 employees and are fighting like saber-toothed tigers to keep from paying anything, I must say you have my profound respect, and I appreciate that.

Mr. **Hendricks**. Thank you.

Senator **Bumpers**. Now, let me ask you, Dr. Blackstone. When you consider the fact that States, virtually every State where hardrock mineral mining is going on, whether it is on Federal lands or otherwise, imposes taxes on mineral production and they seem to be getting along very well.

South Dakota—I flew over the Black Hills about 2 weeks ago, and I looked at all those mines out there. I was also interested in the forests and the clear-cutting issue in the Black Hills. The Black Hills are beautiful, and they do not allow any clear-cutting in the Black Hills. But I was really interested in looking at some of those mines. And incidentally, things ain't too bad because the biggest mining company out there is trying to open a massive, new mine.

But South Dakota has a 2 percent royalty on gross sales I believe it is. It is a tax of 2 percent, and then they have an additional—I do not know what they call it, but it is about 8 percent of net income. That produces, as Senator Pressler said in his testimony, $8 million a year to the State, and that represents almost 2 percent of their total revenue. Now, I just use that as an illustration for two reasons.

Number one, these States all charge something even on Federal lands. They have the right to charge royalties on minerals that are taken off Federal lands in the form of a severance tax or whatever. They have that right, and most of them are doing it. And some of them are raising those taxes right now because the States are just as desperate for income as we are.

And I just say I did not get involved in this issue last year because of the deficit. I got into it for an entirely different reason just because I think it is unjust and unfair the way this whole thing is operated.

But now, these States do not seem to have much difficulty in determining how they are going to assess their severance taxes or whatever.

And the second reason I raised that is you have these wild disparities between States. Some of them charge a lot more than others. And yet, the mining industry comes in here and tells us that if you assess anything on us, we are going to all go out of business.

In looking over Mr. Alfers' chart there, I do not know why anybody would want to stay in the mining business. That was the most horrible looking mess I ever saw in my life. Of course, as a Senator, I would not buy stock in a mining company, but if I had all the money in the world and I was a private citizen, I would not invest in a mining company based on Mr. Alfers' presentation here. I do not know what they are doing. I always thought farmers were the only people who could go broke every year and then go back in business the next year.

[Laughter.]

Senator **Bumpers**. I find the miners can do it year in and year out too.

But let me ask you this. Why is this such a big problem to arrive at some kind of a fair system, for example, of royalties? We do it on everything else. Why is it so difficult when the States do it and seem to get along just fine with it?

In my State, there is a 5 percent severance tax on all hardrock minerals. Incidentally, I quickly got a bill passed because—I forget who it was. It was maybe Jane Fonda or what is Warren Beatty's sister's name? Shirley MacLaine. You remember when quartz would cure everything from cancer on down? Well, the biggest quartz deposit in the United States is in the Ouachita Mountains in my State, and they were down there grubbing and digging like hell from all over the United States. Everybody was coming down there and digging up quartz in the Ouachitas. I do not think Senator McClure knew I did this.

Senator McClure. You didn't do it in Idaho.

[Laughter.]

Senator Bumpers. Well, I got an exception to the 1872 Mining Law passed very quickly to make quartz in the Ouachita forest a saleable mineral. I think we have collected almost $100,000 from bids on contracts to mine quartz crystals. They found out it will not cure cancer, so they are not digging quite as hard as they were. But all I am saying is we get along just fine in my State with a 5 percent severance tax on all hardrock mining.

Your testimony I found to be interesting, but complicated.

Dr. Blackstone. Is that the question?

Senator Bumpers. Yes.

[Laughter.]

Dr. Blackstone. First let me say that I did my Ph.D. dissertation on severance taxes, so I am quite familiar with the problems with severance taxes. But there is a distinction between royalties and severance taxes that is important, and let me just say that briefly.

When you are looking at the Federal Government imposing a royalty on mining from Federal lands, you are putting the Federal Government in the same position as a private landowner. So, that is one issue. We are not comparing here the Federal Government in imposing a severance tax or any kind of tax with the States imposing their taxes. So, we are not talking about a tax type proposal here.

But one of the reasons why it is more difficult is that—well, let's start from the premise, and that is that the States do not seem to have any problem. It is not totally simple.

Senator Bumpers. Let me interrupt. Should we have one royalty? If this bill is going to pass, should we have one royalty for each hardrock mineral?

Dr. Blackstone. That is really a policy decision to be made.

Senator Bumpers. I do not mean one royalty totally.

Dr. Blackstone. One royalty rate?

Senator Bumpers. No. A royalty on gold, maybe a separate royalty on silver. Some of these things do require separate royalties. Could we do that? Would you recommend something that is just general or that applies to all of them?

Dr. Blackstone. I would not necessarily recommend a different royalty for each different type of mineral although arguments can be made that gold is far more profitable than minerals like copper, lead, zinc, et cetera, certainly more so than clay and other kinds of things. If it is a reasonable royalty in the range of 2 to 3 percent, it does make very much difference at that level. You can certainly make arguments that oil and gas can bear a higher royalty rate, and private landowners, as well as the Federal Government, charge a higher royalty rate for production of oil and gas from their lands. An argument can be made that gold should perhaps bare a higher royalty rate than other kinds of minerals.

But everything is really a tradeoff here, and you have to balance that against the costs of compliance when you have ores mingled together in a deposit and that the need for simplicity and ease of administration. It seems to me that it would make sense, as long a sit is a reasonable royalty rate, to have the same royalty rate for all locatable minerals.

And if I may comment on the earlier questions about the States. They do not have such an easy time of collecting their severance taxes either. But the question of actual accuracy that they have in collecting their taxes—I am not sure how effective they are in actually assuring compliance with the rates that they establish when they use different valuation schemes.

Senator BUMPERS. Mr. Alfers, let me ask you this question, and I would like you to answer it in less than 25 minutes now.

[Laughter.]

Senator BUMPERS. I ask this question at every hearing, and I do not want this one to be any exception.

Why is it that the mining industry can pay royalties on State lands, they can pay royalties on private lands, they can pay royalties on acquired Federal lands, and they can pay royalties on offshore lands, but they are going to all fold their tent and go offshore and go to Australia and Africa if you have a royalty on Federal lands?

Mr. ALFERS. I think the reason is of just the magnitude of the ground involved in any of those cases.

Senator BUMPERS. The magnitude of what?

Mr. ALFERS. There is a lot more land involved with the public lands that would be affected.

Senator BUMPERS. Well, what percentage of the gold in this country last year that was mined of roughly 240 metric tons was mined on Federal lands?

Mr. ALFERS. I have no idea.

Senator BUMPERS. Do you know, Mr. Dempsey?

Mr. DEMPSEY. I do not. It is hard to come up with that number because there are some patented claims in the middle of unpatented claim groups. I would suspect a fair amount of it, maybe more than half of it.

Senator BUMPERS. I think you are right, Mr. Dempsey. I think it is slightly more than half, but my point is they pay royalties on—say, if it is even 60 percent. They are paying royalties on 40 percent, but not on 60 percent. And I must say if I were a miner mining lead or gold of anything else and paying the Federal Government a 5 or 10 percent royalty on acquired lands, I would really get upset about my competitor over here who paid nothing. That is not fair, is it?

Mr. ALFERS. I think once again it is a matter of the amount of acreage involved there. In my experience, it has been the exception to find an operation being opened on State lands. It might be because of the royalty, or it might be just because of administration. Generally speaking, State lands are not the target.

At the same time, in this checkerboard system that we have out there in the west, where there may be a section of State lands and mining claims around it, the prospectors will make a discovery on the mining. That prospector or miner would try to get the land position rounded out by the State without regard to the royalty. And so, these smaller pieces of ground, including acquired lands and State leases, can fit into larger operations, and in a way those higher royalty properties can be subsidized by the lower royalty operations coming off of public land.

The offshore situation in Alaska is somewhat different. There, once again, you have a peculiar situation, a peculiar target, where the parties could just sit down and they could better guess at the economics. And a lease at 5 percent might seem quite fair. But to try to extrapolate that experience across all of the public lands is a lot harder.

Senator BUMPERS. Now, we give you a 15 percent depletion allowance on gold. Right?

Mr. ALFERS. I think that is right.

Senator BUMPERS. That is a pretty healthy subsidy, isn't it?

Mr. ALFERS. I do not think it is a subsidy any more than depletion on any mineral is a subsidy.

Senator BUMPERS. Well, we took it mostly away from the oil companies a long time ago.

Mr. ALFERS. Well, that reflects the fact that a mineral is consumed as it is extracted from the ground, but I do not see that as a subsidy. I see that as consuming the——

Senator BUMPERS. What if we raise the depletion allowance to 20 percent? Would you like that?

Mr. ALFERS. I suppose the mining industry might like that.

Senator BUMPERS. What if we cut it to 10?

Mr. ALFERS. They would probably complain.

Senator BUMPERS. Mr. Alfers, how much would gold have to go to before you would feel comfortable paying a royalty?

Mr. ALFERS. I am not saying I would not be comfortable with a royalty at all. I do not think I know enough about the industry at all. But from what I am able to see here, these prices make gold operations quite marginal. I do not know what they should be. Maybe it is $425, $500. It would seem to depend, but I would sure like to know more about the specifics in order to determine what a royalty burden could be.

Senator BUMPERS. Mr. Alfers, let me ask you and Mr. Dempsey both this question. When you have a claim on Federal lands—and I am getting around to this development cost. I assume it costs quite a bit of money to go into the hardrock mining business most of the time.

But before you do that, you do an awful lot of exploration work, don't you, to determine whether that claim is worth mining or not? You core drill it. You assay whatever you find. You do a lot of things, and then you make a calculated judgment, in the case of gold, how much gold there is per ton. In your core drills, you make those calculations. And they do not just open mines willy-nilly without thinking about what the price of gold is and what it is likely to be and how much gold they are going to get of mined ore and what the royalties they are going to have to pay the State are or the Federal Government. All of those things go into a decision when you are making a multi-million dollar investment, don't they?

Mr. **Alfers**. Sure.

Senator **Bumpers**. And you have those costs initially. When you open the mine, you have staggering costs compared to income, don't you?

Mr. **Alfers**. Well, usually. You have development costs up front, yes.

Senator **Bumpers**. You are buying all these heavy trucks and heavy equipment. I watched that operation out in South Dakota. It looked pretty expensive to me.

But because you incur all those costs the first year, it doesn't mean they are gone for ever, does it? You may sustain a loss for 3 years because of your startup cost, but you carry that forward, don't you, against future profits?

Mr. **Alfers**. Sure.

Senator **Bumpers**. Yes. And if after the fourth year, you have a banner year because you have everything rolling and gold is selling for $500 an ounce, you are going to recover a lot of that development cost. That is a part of the consideration you use in opening a mine, isn't it?

Mr. **Alfers**. Yes.

Senator **Bumpers**. And if we have a 3 percent or a 5 percent or an 8 percent royalty here, that would go into the calculation, wouldn't it?

Mr. **Alfers**. Yes, it would.

Senator **Bumpers**. Now, why would anybody move offshore when virtually no country on earth allows people to mine without a royalty?

Mr. **Alfers**. Well, you would move offshore if the deposits showed a better rate of return somewhere else.

Senator **Bumpers**. Well, we have a lot of people doing that. We have 1,500 plants within 8 miles of the border down in Mexico because they can labor for $1.50, $2 a day. And I understand that. If you could find a mine where the content of the ore was sufficient and you did not have to pay a royalty or income tax, a lot of other things, you might do that, but you would do that anyway, wouldn't you?

Mr. **Alfers**. Move offshore if you had a better deposit?

Senator **Bumpers**. Yes. If you had a good claim in Australia or South Africa that you could mine, you would go there and mine it, wouldn't you, right now?

Mr. **Alfers**. I do not think the market is quite that perfect. I think that mining companies who are here, who have an investment here, who are comfortable with the environment here want to stay here. This is where their infrastructure is.

Senator **Bumpers**. I am not suggesting they shut their mines down here. I am just simply saying that if there was something profitable offshore, they would go there.

Mr. **Alfers**. Well, they might, but they have a limited amount of capital.

Senator **Bumpers**. Don't we have American mining companies that are mining in other countries? Don't we have American mining companies operating in Canada?

Mr. **Alfers**. Surely.

Senator **Bumpers**. Do we have any in Australia?

Mr. **Alfers**. Stan would know.

Senator **Bumpers**. Stan?

Mr. **Dempsey**. Yes, we certainly do.

Senator **McClure**. And in South Africa.

Mr. **Dempsey**. All over the world.

Senator **McClure**. Zimbabwe.

Senator **Bumpers**. I am going to possibly have some additional questions to submit to you, Dr. Blackstone and gentlemen, in writing since we are getting a little bit late.

Senator McClure, I am going to defer to you now.

Senator **McClure**. Thank you very much, and in view of the hour, I will try to be brief. I am not going to ask a lot of questions, but I do want to explore for a moment the general thrust of what the Chairman has been saying here now.

Surely, everyone does look at their cost of operation. If you increase the cost of operation, and they look at it and say I cannot operate at that, they do not operate. They either do not go into the business in the first place, do not open the mine in the first place, or they close one down. Isn't that correct? Is there anyone at the table who would disagree with that?

[No response.]

Senator **McClure**. I think that is obvious. If the price goes up, if the cost of operation goes up, there are more mines that do not operate. They would not be opened or they would be closed down.

It is obvious to me you can fix that arbitrarily at any cost you wish. You can change the cost of operation. You change the economics of operation. And immediately you change the amount of operations that would take place. You can learn that in economics 101, and it does not even require a committee of Congress to explore that to prove the truth of it.

The concern that I have is multi-fold I guess, but one is the desire to say the Federal Government is a landowner just like any other landowner and therefore should generate returns on their lands just like any other landowner. I do not know about you, but in the State of Idaho, the Federal Government is not just like any other landowner. It owns two-thirds of my State. I resent it bitterly. I wish to hell they didn't. And if I had the opportunity to exchange the percentage of federally owned lands in my State to the percentage of acquired lands in the United States, I would gladly make that deal and we could manage Federal lands like we do acquired lands because it is a minuscule portion of the total public lands of this country on acquired lands. That is why we treat it differently simply because it is not such a big deal for the country.

We have a national policy with respect to the use of public lands because we have national objectives. One of those national objectives is the economic health of this country. We are so fat, dumb and happy in this country today we do not care whether we destroy jobs or not because people can get another job or they can go on welfare, or they get a retraining program. I see that sometimes suggested. Retraining for what?

We have experts coming in and telling us you do not have to have basic production in this country. We will just provide services. I want to remind people there are no services to be provided to anybody unless there is a basic economy. Every third world country around this world today is trying to find a way to use their natural resources to create economic activity. We are so fat, dumb and happy we do not think that is necessary. We are so rich we can set that aside.

Every country that has a natural resource is trying to find a way to make sure that they get the value-added industry into their country. That is why we are having a little trouble right now that is hidden with respect to the impact of the loss of Kuwaiti oil supplies because a lot of the impact that we will suffer from the loss of supplies from Kuwait is not crude oil, it is finished product because they knew that they would do better in their country if they had the refineries there and they shipped the finished product to us rather than the crude oil. The result is we do not have the refineries in this country to replace the finished product that was coming from Kuwait. That is what is going to hurt us a lot more immediately than the loss of the crude oil supply. Every country in the world wants value added, but unless you have basic production, you have nothing to add value to.

Now. there is a national objective to seeing that there is economic activity, and we are not so wealthy we can ignore that. Look at the national debt today and the service on the national debt. It came about because people said it doesn't really matter whether we spend more than we have. We have something on the order of $300 billion, maybe $400 billion, a year more consumption in this country than we have production. And you cannot consume more than you produce for very long without getting into trouble.

Mr. Hendricks, you cannot do it. You cannot run a negative cash flow unless you have somewhere else to get the money from the put into your operation. That is exactly what Mr. Alfers was saying. It isn't just a question of net profitability. It also has to do with cash flow because if you have a negative cash flow, if it is costing you more than you produce, you better have some money coming into that operation from somewhere else or you are out of business.

As a country, where do we get the money from somewhere else to put into a negative cash flow economy? If you do not have basic production in this country, you do not have economic health in this country. And there are a lot of people who have completely lost sight of that. They say, oh, well, we will just print some more money. I remember a few years ago one of my colleagues in the Senate who said just exactly that. Money is too expensive. We ought to print more of it.

[Laughter.]

Senator McClure. My colleague from Idaho used to say and somewhat facetiously government is the only one that could possibly take two perfectly good commodities, paper and ink, and put them together and make them both worthless.

[Laughter.]

Senator McCLURE. You have the capacity to destroy your economy by governmental policies, and every Nation and every government in the world looks at a mix of policies dealing with the economic and social strength of their country. Chile does not fix the price of copper solely to make money on copper. Chile has a copper mining industry that is designed to provide jobs for people that would starve otherwise. Every country in the world does that except now we are saying the United States should have a policy to maximize return no matter what happens to the industry. I think we have to be concerned about what happens to the mining industry. You are not the only industry in the world.

I remember a few years ago a fellow from Ohio told me this, not the Senator from Ohio. Although he might have, he didn't. He said you act like farmers are important, and I said they are. There are a lot of them. He said there are a lot more truck drivers in this country, so subsidize the truck drivers and we will do better.

We have a lot of Federal policies dealing with the strength of segments of our economy. Those are policy questions. They don't just float from the idea, the rather simple idea I might say to my friend from Arkansas, we own it, we have a monopoly on it, and you are going to pay us if you use it. There is something more to the mix of an economy than just that. And I am concerned.

The oil and gas industry was so profitable that we put a big price on their operations, and now we are more vulnerable. We do not have young men and women in Saudi Arabia because it is apples and oranges they grow over there because there is something pretty important to the basic strength of an industrialized economy having enough energy available to us.

We have problems in southern Africa, and I didn't say South Africa. I said southern Africa, the southern portion of the African continent that has most of our strategic mineral capability in the world today. The balance of every strategic mineral is in the production in that area of the world. And we have problems, and it shapes national policies because we have problems.

I do not know why it is that we continue to cripple ourselves. You have the old idea of shooting yourself in the foot. Everybody has used that term, but they never quite get back to the picture of the clumsy drugstore cowboy that is trying to draw quickly, pulled the trigger while he is getting it out of the holster, and he shot himself in the foot. Well, it is one thing to be clumsy, but it is another to deliberately hold your foot up, take dead aim and pull the trigger. I am afraid that is exactly what we are doing in this country is holding our foot up, taking dead aim and pulling the trigger just so we can say, oh, did that hurt.

[Laughter.]

Senator McCLURE. I am concerned with this notion that somehow the Federal Government must maximize its return on every use of the public lands, and I say that on behalf of the people who use those public lands for a whole lot of different reasons.

I just had a remarkable time in Idaho during the August recess. I took a pack trip up into the mountains, and I went fishing. My costs of going there were minimal. I didn't have to pay a rental fee to the Federal Government of the United States for the privilege of going on their lands, and I didn't pay one dime to the Federal Government for the privilege of catching those fish that I caught in those lakes. I did not pay one penny to the Federal Government for the opportunity of looking at the tremendously beautiful scenery I saw in a wilderness area in Idaho, a wilderness area which I helped sponsor and create. I enjoyed the experience, and I did it with my family. And it was an important thing that I did for them and for us partly because the Federal Government did not insist that they ought to have a rate of return on the use of every public asset that I used. That is one of the values of this country in which we live. The public lands are an important part of the values of the west in the United States.

I just wish that when Idaho had been admitted to the Union that we were 100 percent an equal citizen of this country and not one-third an equal citizen of this country in terms of the control of the surface area of my State. And I will guarantee you—no, I will not even say that. It might have been different if the State of Idaho controlled its own destiny and the use of our resources, resources within the boundary of my State.

I am concerned when I listen to each of you here tell me there are economic consequences to how we do this. I am concerned because I believe you, Mr. Alfers, and you, Mr. Hendricks, and you, Dr. Blackstone, that the imposition of a royalty is a tremendously complex computation. Taxing policy is always difficult, and no tax system I know of is fair by itself. The simplest, easiest tax to levy would be a gross transactions tax. Why don't we just levy three-quarters of 1 percent on every dollar that changes hands in this country? Three-quarters of 1 percent. We would finance every activity of our Federal Government and have a balanced budget.

Why don't we do it? Well, a whole lot of reasons, one of which is the margins of profit for different companies vary dramatically. A used car sales operation usually grosses about three-quarters of 1 percent, and if you levy a gross transaction tax, you wipe them out. The retail grocery industry in this country has a net of less than 2 percent of sales. And you put a three-quarters of 1 percent on something that has a net of less than 2 percent, you have wiped almost half of their operating margins. Compared to a hardware store or a clothing store or a lot of other businesses, dramatic differences.

And what you are telling me and what I understand about the mining industry is you cannot just apply one rule that is fair to each. They are so different, their costs of operation, the kinds of ores that they have, the mixture of ores. We will end up—and I think, Dr. Blackstone, you said please don't try to levy a different royalty for each mineral. We'll end up with a flat rate.

Senator BUMPERS. Is that what you said, Dr. Blackstone?

Dr. BLACKSTONE. I certainly didn't state "please don't".

Senator McCLURE. Well, what did you say?

Dr. BLACKSTONE. I said that arguments can be made either way on the basis of economics, and I guess if you consider all of the objectives that Congress has in levying a royalty on mineral production, it would make sense to me for locatable minerals to have a single royalty.

Senator McCLURE. How many different locatable minerals are there that are mined and recovered in this country?

Dr. **Blackstone**. Oh, it is impossible to give a number for that.

Senator **McClure**. Is it one or two or a dozen or 100?

Mr. **Dempsey**. There are 70 or 80 that are actually being recovered.

Dr. **Blackstone**. It depends on how you define minerals. The tax code uses a whole category for it.

Senator **McClure**. Well, we could have 70 or 80 different rates if there are 70 or 80 different minerals.

Dr. **Blackstone**. The tax code doesn't find it necessary to have 70 or 80 different depletion rates.

Senator **McClure**. No, it didn't find necessary to, but would it be desirable to?

Dr. **Blackstone**. That would not be desirable.

Senator **McClure**. I thought I understood you to say that it would not be very workable to try to do it mineral by mineral.

Dr. **Blackstone**. That is right, and the tax code does not for depletion purposes either, but there are several different categories of minerals. For example, oil and gas has always had a different rate for depletion than gold, silver and certain other minerals, and then there are other categories.

Senator **McClure**. Why does it have a different rate of depletion?

Dr. **Blackstone**. Well, at one time it was considered a very risky, costly kind of business, and it had a 27.5 percent depletion rate, the highest depletion rate that any mineral has had. And then Congress made a policy decision that it did not need that kind of tax incentive to encourage exploration and development.

Senator **McClure**. It came down to profitability.

Dr. **Blackstone**. I think it is basically an evaluation of the profitability of that particular category of mineral.

Senator **Bumpers**. Well, if the Senator would yield. For example, we have a 22 percent depletion rate on zirconium, and I think the reason is because that is a highly desirable mineral and difficult to find.

Dr. **Blackstone**. Absolutely.

Senator **Bumpers**. So, the 22 percent rate is designed to encourage people to look for it.

Dr. **Blackstone**. That is right. And so, there are a number of policy considerations in which the rate is based. One is how much you want to encourage people to go out and discover and produce it and how profitable it is with there being an inverse relationship there between profitability and——

Senator **McClure**. So, it becomes a public policy question.

Dr. **Blackstone**. Absolutely.

Senator **McClure**.—and not just a question that we own the land so we can charge it.

Dr. **Blackstone**. That is also a public policy question.

Senator **McClure**. Is that a public policy question? I hadn't really quite understood it in that term.

Dr. **Blackstone**. The question of whether or not the Federal Government is going to impose a royalty for locatable minerals on public lands is definitely a policy question. It is certainly not a legal issue.

Senator **Bumpers**. Senator McClure, I am going to run. I am going to have to leave this with you.

I want to put something in the record with your indulgence.

Senator **McClure**. Certainly.

Senator **Bumpers**. Mr. Jamison testified that 40 patents were issued in 1989, and I think that is probably correct. But I want to also point out that those 40 patents included 1,016 claims, or 19,345 acres. And the reason I want to put that in, Senator McClure, is because I think without it somebody might think that a patent is only for 20 acres. As you know, if they are contiguous claims, they can issue one patent for several hundred acres of land, and it would still be just one patent and several claims. I just want to say 40 patents represents over 19,000 acres here.

Before I leave, I want to thank you, Dr. Blackstone. Gentlemen, I thank all of you for being with us this afternoon.

Senator **McClure** [presiding]. I do not know that it is necessary to belabor the subject any further. I do apologize both to Senator Bumpers and others who have been forced to listen once again to my concerns about what policy does or should be.

A couple of years ago, there was a presidential campaign in this country. Congressman Gephardt ran on a jobs issue. He didn't get very far. That may not be the only reason. His choice of issues may have been wrong. There may have been other reasons, but his political aspirations were not realized, and that was the major basis upon which he was campaigning, which tells me that the American public doesn't really care about jobs. And those who are trying to make policy in this country are also telling us, many, jobs don't matter. To this Senator, jobs matter.

There are areas in my State that have no other basis for their economy than the natural resources that occur on public lands. Those people and those communities matter to me. Now, it may be that somebody somewhere else doesn't care about those people or those communities, but if our government is going to work, there has to be a decent respect for the concerns of people all across our country in different regions of the country. Urban mass transit doesn't mean much to me in Idaho. I support urban mass transit because it does mean something to some people some other places in the United States. And when we get to the point that we have only our own little, narrow, parochial concerns making national policy, we destroy the possibility of a consensus that must have a decent respect for the points of view and the concerns of people who live in other areas of our country.

And I see increasingly in the political process in this country that lack of respect for the needs and concerns of people who live elsewhere, and it is having a political effect on our country today. And it is going to be divisive and rend the social fabric in this country in ways that we can scarcely measure. This is one of the evidences of that I think in this hearing today.

Those of us who are concerned about what happens to a basic resource industry are somehow put down as being against the national interest. I do not own one share of stock in any oil company. I never have. I do not own any share in any mining company today, although my family at times in the past did. I have done my assessment work on our claims. We do not have them anymore. We could not afford to keep them up. We turned them back, and they are such poor claims, nobody else took them. But I do know something about the mining industry, and I do know something about the communities that depend upon the mining industry.

And our country, because of public policy, decided we didn't like dirty smelters. So, the basic materials produced in the Coeur d'Alene mining district in Idaho go to Belgium to go through a smelter, and the result is fabricators in the European Economic Community have cheaper access to our basic resources than our own fabricators in our country. You tell me that is good policy. You tell me it is good policy for us to export our jobs to other countries so they can fabricate and get the value added and ship it back to us in finish products. That is not my idea of good policy.

Thank you very much. The record will remain open for 2 weeks for additional statements and responses to questions.

The committee is adjourned.

[Whereupon, at 5:17 p.m., the hearing was adjourned.]

APPENDIX I

Responses to Additional Questions

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

TAKE
PRIDE IN
AMERICA

IN REPLY REFER TO:
1750 (140)

OCT 1 2 1990

Honorable Jeff Bingaman
Chairman, Subcommittee on Mineral Resources
Development and Production
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Mr. Chairman:

We are pleased to enclose, for the hearing record, responses to your questions and those of Senator Bumpers, which were submitted in your letter of September 14, 1990, as a followup to my testimony on September 13 before your Subcommittee regarding the royalty and fee provisions of S. 1126, the Mining Law of 1989.

If you have any further questions or need additional information, please let us know.

Sincerely,

Cy Jamison
Director

Enclosures

Senator Bingaman - Re: S. 1126

1. **Please explain how a fee for surface use as you have proposed would provide a fair return to the public while not unreasonably burdening the hardrock mining industry.**

ANSWER:

A surface use fee would be paid once production of minerals commenced. The fee would be a payment for the use of the surface for an activity that would prevent the public from using the land for other purposes.

The fee would be paid when operations were initiated and would cease when reclamation was completed and the lands released to other than mining uses. The fee could be paid in addition to any fees charged for processing plans or notices. We note that the Independent Office Appropriations Act, which has already been used by BLM in setting the Mining Claim Recordation fees, would permit BLM to recover some of the costs of processing plans and notices.

A fixed surface use fee should be established so that its effects on rates of return can be overcome by increased production, increased recovery of associated minerals, and increased recovery of the total resource. The public is served by the continued direct and indirect economic benefits derived from the industry and the public is compensated for the temporary loss of land use.

2. **For what minerals produced on the Federal lands does the Federal government receive a royalty or other monetary return?**

ANSWER:

The onshore minerals leasable on Federal lands for which royalties are collected are those leasable under the Mineral Leasing Act of 1920, as amended, and the Mineral Leasing Act for Acquired Lands of 1947: coal, phosphate, sodium, potassium, oil, oil shale, gilsonite (including all vein-type solid hydrocarbons), and gas. Under the Geothermal Steam Act, onshore geothermal resources are leasable and also yield royalties. Additionally, under Reorganization Plan #3, those onshore "hardrock minerals" that are locatable on public domain lands are leasable on certain acquired lands under the jurisdiction of the Department of Agriculture and on lands in certain national recreation areas and yield royalties. Onshore leasable minerals showing FY 1989 production are listed on Attachment 1. Additionally, other minerals that are leasable, for which the Minerals Management Service has established product codes, but that either have no leases in effect or production at the end of FY 1989, are listed on Attachment 2.

Question #2, continued.

- o Please provide the royalty, rent, and bonus bids if, any, imposed by statute or regulation, as well as the revenues derived for the last 10 years, by mineral and state.

ANSWER:

The general lease terms and conditions for Federal onshore leases relating to royalty rates, rents, and bonus bids are given on Attachment 3.

A summary of Onshore Federal Production Royalties, Minimum Royalties, Rents, and Bonuses for the years 1980 to 1989 is given in Attachment 4.

A summary of Onshore Federal Production Royalties (segregated by general commodity types), Minimum Royalties, Rents, and Bonuses for the years 1980 to 1989 is given in Attachment 5.

A summary of Onshore Federal Production Royalties by State (segregated by general commodity types), for the years 1980 to 1989 is given in Attachment 6. NOTE: Each pair of successive pages comprises one table.

A detailed listing of Onshore Federal Production Royalties by State (segregated by specific commodity types), for the years 1986 to 1989 is given in Attachment 7. Data for the years 1980 through 1985 are not available.

A summary of Onshore Federal Minimum Royalties by State, for the years 1985 to 1989 is given in Attachment 8. Data for the years 1980 through 1984 are not available.

A summary of Onshore Federal Rents by State, for the years 1985 to 1989 is given in Attachment 9. Data for the years 1980 through 1984 are not available.

A summary of Onshore Federal Bonuses by State, for the years 1954 to 1989 is given in Attachment 10.

A detailed listing of bonuses paid on Federal leases for the years 1980 through 1989, segregated by state and commodity, is given in Attachment 11.

A copy of the Minerals Management Service's (MMS) "Mineral Revenues 1989 Report on Receipts From Federal and Indian Leases" is included for your general reference as Attachment 12.

Senator Bingaman - Re: S. 1126

Question #2, continued

o Does the Federal government receive payment for the value of these minerals as well as payment for surface use?

ANSWER:

Yes. The royalties are the payments. The Federal leases themselves provide for the use of the surface in the development of the onshore leasable minerals as a standard lease term. All Federal leases require a rental payment on a per-acre basis as a fee for the use of the Federal surface.

3. **What is the cost of administering the royalty management program for nonenergy mineral leasing?**

ANSWER:

In FY 1989, the Bureau of Land Management spent $2.9 million on the nonenergy mineral program. This expenditure included costs for both the leasing and operations components of the program.

Nonenergy mineral leases represent an extremely small portion of the MMS Royalty Management Program workload, accounting for 0.4 percent of the production and accounting and 0.5 percent of the fiscal accounting workload. The MMS estimates the total to be $150,100 which is less than 1 percent of the total FY 1990 royalty budget of $54.3 million.

Attachment 1

Onshore leasable minerals showing FY 1989 production are listed below.

MINERAL

Amethyst
Bentonite
Carbon Dioxide
Coal - Surface
Coal - Underground
Copper
Garnet
Gas
Geothermal Resources
Gilsonite
Hot Water
Iron Ore
Langbienite
Lead
Leonardite
Limestone
Magnesium
Nitrogen
Oil
Phosphate
Potash
Purge Liquor
Quartz Crystals
Sand and Gravel
Sodium
Sulfur
Trona Ore
Zinc

Attachment 2

Other minerals that are leasable, for which the Minerals Management Service has established product codes, but that either have no leases in effect or production at the end of FY 1989, are listed on this attachment.

Attachment 3

The respective applicable royalty rates, rent, and bonus bid for these onshore minerals leasable under the various mineral leasing acts and regulations are stated.

MINERAL	ROYALTY RATE	RENT PER ACRE	BONUS BID PER ACRE
Amethyst	5.0%	$1	
Bentonite	5.0%	$1	
Carbon Dioxide	12.5%	$1.50-$2[1]	
Coal - Surface	12.5%	$3	$100, Minimum
Coal - Underground	8.0%	$3	$100, Minimum
Copper	5.0%	$1	
Garnet	5.0%	$1	
Gas	12.5%	$1.50-$2[1]	
Gas From NPRA	16.67%	$3	
Geothermal Resources	10%-15%	$1-$2[2]	
Gilsonite	Lease Terms	$.50	
Hot Water	10%-15%	$1-$2[2]	
Iron Ore	5.0%	$1	
Langbienite	5.0%	$1	
Lead	5.0%	$1	
Leonardite	5.0%	$1	
Limestone	5.0%	$1	
Magnesium	5.0%	$1	
Nitrogen	12.5%	$1.50-$2[1]	
Oil	12.5%	$1.50-$2[1]	
Oil From NPRA	16.67%	$3	
Phosphate	5.0%	$.25-$1[3]	
Potash	5.0%	$.25-$1[3]	
Purge Liquor	12.5%	$1.50-$2[1]	
Quartz Crystals	5.0%	$1	
Sand and Gravel	5.0%	$1	
Sodium	5.0%	$.25-$1[3]	
Sulfur	5.0%	$.50	
Trona Ore	5.0%	$.25-$1[3]	
Zinc	5.0%	$1	

[1] Rates reflect leases issued under the 1987 Leasing Reform Act. Leases issued earlier have variations in both rental and royalty rates. Most rents for such leases are currently $1 per acre. Royalties are 12.5% for noncompetitive leases whereas competitive leases have sliding scale royalties with minimum rentals of 12.5%.

[2] $2 per acre rent in KGRAs.

[3] Rent escalates to $1 per acre in lease-year six.

Attachment 4

A summary of Onshore Federal Production Royalties, Minimum Royalties, Rents, and Bonuses for the years 1980 to 1989 is attached.

These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

Attachment 5

A summary of Onshore Federal Production Royalties (segregated by general commodity types), Minimum Royalties, Rents, and Bonuses for the years 1980 to 1989 is attached.

These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

Attachment 6

A summary of Onshore Federal Production Royalties by State (segregated by general commodity types), for the years 1980 to 1989 is attached.

NOTE: Each pair of successive pages comprises one table. These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

Attachment 7

A detailed listing of Onshore Federal Production Royalties by State (segregated by specific commodity types), for the years 1986 to 1989 is attached.

Data for the years 1980 through 1985 are not available.

These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

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Table 2.--Royalties, rents, and bonuses from Federal and Indian mineral leases in the United States, 1980-89

	Federal Lands		Indian	Total
	Offshore	Onshore	Lands	Revenues
1980				
Oil Royalties...........	$ 837,237,386	$ 413,403,243	$ 67,185,913	$ 1,317,826,542
Gas Royalties...........	1,295,291,353	215,282,024	30,726,238	1,541,299,615
Coal Royalties..........	---	32,255,361	7,874,061	40,129,422
Other Royalties.........	4,134,686	44,247,789	13,415,171	61,797,646
Minimum Royalties.......	2,284,553	---	---	2,284,553
Rents....................	19,055,150	D/I	D/I	19,055,150
Bonuses..................	4,204,640,257	22,982,316	---	4,227,622,573
Total...............	$6,362,643,385	$ 728,170,733	$119,201,383	$ 7,210,015,501
1981				
Oil Royalties...........	$1,575,316,509	$ 604,782,996	$103,919,408	$ 2,284,018,913
Gas Royalties...........	1,711,962,893	274,731,205	36,880,307	2,023,574,405
Coal Royalties..........	---	43,009,278	8,604,304	51,613,582
Other Royalties.........	1,270,822	42,162,901	12,069,738	55,503,461
Minimum Royalties.......	2,250,300	---	---	2,250,300
Rents....................	21,731,035	D/I	D/I	21,731,035
Bonuses..................	6,652,980,897	128,673,005	---	6,781,653,902
Total...............	$9,965,512,456	$1,093,359,385	$161,473,757	$11,220,345,598
1982				
Oil Royalties...........	$1,740,288,038	$ 524,530,180	$ 92,559,824	$ 2,357,378,042
Gas Royalties...........	2,074,583,597	349,439,615	54,378,374	2,478,401,586
Coal Royalties..........	---	61,898,704	8,527,548	70,426,252
Other Royalties........	---	36,613,331	7,261,001	43,874,332
Minimum Royalt ..	2,393,759	---	---	2,393,759
Rents....................	20,055,201	154,728,000	4,656,065	179,439,266
Bonuses..................	3,987,490,009	125,270,858	---	4,112,760,867
Total...............	$7,824,810,604	$1,252,480,688	$167,382,812	$ 9,244,674,104

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Table 2.--Royalties, rents, and bonuses from Federal and Indian mineral leases in the United States, 1980-89 (cont.)

	Federal Lands		Indian	Total
	Offshore	Onshore	Lands	Revenues
1983				
Oil Royalties...........	$1,639,521,510	$ 523,898,702	$ 89,727,647	$ 2,253,147,859
Gas Royalties...........	1,814,796,569	346,762,100	50,287,896	2,211,846,565
Coal Royalties..........	---	52,330,292	9,416,941	61,747,233
Other Royalties.........	---	39,593,904	6,940,714	46,534,618
Minimum Royalties.......	4,463,658	---	---	4,463,658
Rents....................	32,463,097	129,511,928	3,621,550	165,596,575
Bonuses.................	5,749,016,369	62,108,205	---	5,811,124,574
Total...............	$9,240,261,203	$1,154,205,131	$159,994,748	$10,554,461,082
1984				
Oil Royalties...........	$1,823,447,844	$ 519,046,615	$ 75,973,022	$ 2,418,467,481
Gas Royalties...........	2,091,276,753	371,155,164	37,295,148	2,499,727,065
Coal Royalties..........	---	69,359,702	7,613,759	76,973,461
Other Royalties.........	49,456,076	57,133,851	7,504,971	114,094,898
Minimum Royalties.......	3,458,139	---	---	3,458,139
Rents....................	35,607,835	117,754,744	3,576,549	156,939,128
Bonuses.................	3,928,876,308	50,068,801	---	3,978,945,109
Total...............	$7,932,122,955	$1,184,518,877	$131,963,449	$ 9,248,605,281
1985				
Oil Royalties...........	$1,707,184,899	$ 492,367,908	$ 75,025,974	$ 2,274,578,781
Gas Royalties...........	1,905,597,880	328,657,320	35,853,169	2,270,108,369
Coal Royalties..........	---	103,473,037	23,403,336	126,876,373
Other Royalties.........	26,030,597	68,455,626	5,142,229	99,628,452
Minimum Royalties.......	4,067,321	1,782,388	---	5,849,709
Rents....................	61,866,436	105,809,280	3,372,750	171,048,466
Bonuses.................	1,543,577,714	47,594,759	---	1,591,172,473
Total...............	$5,248,324,847	$1,148,140,318	$142,797,458	$ 6,539,262,623

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Table 2.--Royalties, rents, and bonuses from Federal and Indian mineral leases in the United States, 1980-89 (cont.)

	Federal Lands		Indian	Total
	Offshore	Onshore	Lands	Revenues
1986				
Oil Royalties...........	$1,015,037,703	$ 268,689,563	$ 42,420,370	$ 1,326,147,636
Gas Royalties...........	1,518,338,984	224,601,025	27,263,985	1,770,203,994
Coal Royalties..........	---	108,420,624	29,476,973	137,897,597
Other Royalties.........	26,283,936	62,759,211	5,867,330	94,910,477
Minimum Royalties.......	5,176,608	7,921,348	---	13,097,956
Rents....................	52,958,237	73,453,353	3,018,833	129,430,423
Bonuses..................	187,094,747	30,209,062	---	217,303,809
Total...............	$2,804,890,215	$ 776,054,186	$108,047,491	$ 3,688,991,892
1987				
Oil Royalties...........	$ 999,273,491	$ 289,069,747	$ 45,813,797	$ 1,334,157,035
Gas Royalties...........	1,337,761,434	183,941,568	22,240,298	1,543,943,300
Coal Royalties..........	---	152,470,369	30,481,374	182,951,743
Other Royalties.........	14,129,101	56,929,325	6,252,114	77,310,540
Minimum Royalties.......	21,399,332	14,377,320	---	35,776,652
Rents....................	74,642,712	61,449,391	1,206,406	137,298,509
Bonuses..................	497,247,006	34,752,714	---	531,999,720
Total...............	$2,944,453,076	$ 792,990,434	$105,993,989	$ 3,843,437,499
1988				
Oil Royalties...........	$ 747,454,359	$ 230,896,902	$ 36,046,679	$ 1,014,397,940
Gas Royalties...........	1,310,301,872	182,044,265	22,492,041	1,514,838,178
Coal Royalties..........	---	172,795,745	46,691,767	219,487,512
Other Royalties.........	20,845,382	63,798,020	7,052,181	91,695,583
Minimum Royalties.......	16,822,821	11,279,396	---	28,102,217
Rents....................	61,433,545	64,810,845	1,255,603	127,499,993
Bonuses..................	1,234,587,634	59,394,838	---	1,293,982,472
Total...............	$3,391,445,613	$ 785,020,011	$113,538,271	$ 4,290,003,895

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Table 2.--Royalties, rents, and bonuses from Federal and Indian mineral leases in the United States, 1980-89 (cont.)

	Federal Lands		Indian	Total
	Offshore	Onshore	Lands	Revenues
1989				
Oil Royalties...........	$ 818,591,495	$ 263,056,653	$ 40,835,885	$ 1,122,484,033
Gas Royalties...........	1,300,193,995	176,414,932	24,632,980	1,501,241,907
Coal Royalties..........	---	194,541,835	47,677,927	242,219,762
Other Royalties.........	32,604,073	69,257,958	9,283,010	111,145,041
Minimum Royalties.......	38,890,914	14,596,315	---	53,487,229
Rents...................	79,247,653	64,582,840	1,454,523	145,285,016
Bonuses.................	645,646,870	93,490,354	---	739,137,224
Total...............	**$2,915,175,000**	**$ 875,940,887**	**$123,884,325**	**$ 3,915,000,212**

NOTE: D/I indicates that data are incomplete for the revenue source during the time period.

Federal onshore minimum royalties are included in Federal onshore oil, gas, coal, and other royalties for 1980-84. Minimum royalties are not collected from Indian leases.

Indian rent revenues represent fiscal year data from Bureau of Indian Affairs (BIA) records for 1982-87. Indian rent revenues represent calendar year data from Minerals Management Service (MMS) records for 1988-89.

Offshore Federal bonus revenues represent calendar year data from U.S. Geological Survey records for 1980 and MMS records for 1981-89. Onshore Federal bonus revenues represent fiscal year data from Bureau of Land Management Public Land Statistics, for 1980-87. Onshore Federal bonus revenues represent calendar year data from MMS records for 1988-89. Indian bonus revenues are collected by BIA.

PRODUCT CODES

CODE	DESCRIPTION
01	Oil
02	Condensate
03	Processed (residue) gas
04	Unprocessed (wet) gas
05	Drip or scrubber condensate
07	Gas plant products
09	Nitrogen
12	Flash gas
13	Fuel oil
14	Oil lost
15	Fuel gas
16	Gas lost - flared or vented
17	Carbon dioxide gas (CO2)
18	Salt
19	Sulfur
20	Other liquid hydrocarbons (pit, skim, and slop oil)
22	Helium
25	Geothermal - hotwater
26	Geothermal - effluent disposal
27	Geothermal - steam

APPENDIX C

PRODUCT CODES

CODE	PRODUCT	UNIT OF MEASURE
AA	Amethyst	Pounds
AB	Asbestos	Pounds
AD	Asphalt	Tons
BB	Barite	Tons
BC	Basalt	Tons
BD	Bentonite	Tons
BF	Bitumen	Tons
BW	Borax Ore	Tons
BG	Borax-Coarse	Tons
BH	Borax-Fine	Tons
BJ	Borax-Granular	Tons
BL	Borax-Standard	Tons
BM	Boric Acid	Tons
BN	Boric Slag	Tons
BR	Bromine	Tons
CD	Cadmium	Pounds
CA	Calcium Chloride	Pounds
CB	Chat	Tons
CC	Cinders	Tons
CG	Clay	Tons
EA	Coal-Anthracite-Processed	Tons
EB	Coal-Anthracite-Raw	Tons
EC	Coal-Bituminous-Processed	Tons
ED	Coal-Bituminous-Raw	Tons
EF	Coal-Lignite-Processed	Tons
EG	Coal-Lignite-Raw	Tons

CODE	PRODUCT	UNIT OF MEASURE
EH	Coal-Subbituminous-Processed	Tons
EI	Coal-Subbituminous-Raw	Tons
CU	Copper	Pounds
CH	Copper Concentrate	Tons
CI	Copper Concentrate (Mill-equivalent)	Tons
CJ	Copper Ore	Tons
DA	Dawsonite	Tons
FA	Feldspar Concentrate	Tons
FB	Ferro Phosphorous Slag	Tons
FC	Fluorspar Concentrate-Industrial Grade	Tons
FD	Fluorspar Concentrate-Chemical Grade	Tons
GB	Garnet Sands	Tons
GC	Garnet Concession Sale	Tickets
GF	Gilsonite	Tons
AV	Gold Ore	Tons
AU	Gold Metal	Ounces
AP	Gold Placer	Ounces
GG	Granite	Tons
GH	Gypsum	Tons
IA	Ilmenite Raw Ore	Tons
FF	Iron Concentrate	Long Ton Units
FE	Iron Ore	Tons
KA	Kyanite	Tons
LA	Langbeinite-Raw Ore	Tons
LB	Langbeinite-Coarse	Tons
LC	Langbeinite-Granular	Tons
LD	Langbeinite-Standard	Tons
LS	Langbeinite-Special	Tons

CODE	PRODUCT	UNIT OF MEASURE
PB	Lead	Tons
PC	Lead Concentrate	Tons
PE	Lead Concentrate- (Mill-equivalent)	Tons
PF	Lead Ore	Tons
LT	Leonardite	Tons
PG	Limestone	Tons
PH	Lithium Carbonate	Tons
MN	Manganese	Tons
MG	Magnesium Chloride Brine	Tons
HG	Mercury	Pounds
MA	Mica	Tons
MO	Molybdenum	Pounds
MB	Molybdenum Concentrate	Tons
MC	Molybdenum Concentrate (Mill-equivalent)	Tons
JA	Muriate of Potash-Coarse	Tons
JB	Muriate of Potash-Fine	Tons
JL	Muriate of Potash-Granular	Tons
JD	Muriate of Potash-Standard	Tons
NC	Nahcolite	Tons
NI	Nickel	Pounds
OB	Olivine Concentrate	Tons
PI	Peat	Tons
PJ	Phosphate Concentrate	Tons
PK	Phosphate Raw Ore	Tons
PL	Phosphate Rock	Tons
JE	Mixed Potash-Raw Ore	Tons
PN	Potassium Sulphate-Standard	Tons

CODE	PRODUCT	UNIT OF MEASURE
PS	Potassium Sulphate-Special Standard	Tons
PT	Potassium Sulphate-Granular	Tons
PP	Purge Liquor	Tons Equivalent
QA	Quartz	Pounds
QB	Quartz Crystal	Tickets/Specimen
SA	Salt	Tons
SD	Salt Cake	Tons
SF	Sand/Gravel	Cubic Yards
SC	Scoria	Cubic Yards
AG	Silver	Ounces
SH	Slag (Metal)	Tons
NA	Sodium	Tons
SJ	Soda Ash	Tons
SK	Soda Ash-Coarse	Tons
SL	Soda Ash-Granular	Tons
SO	Soda Ash-Standard	Tons
SP	Sodium Sesquicarbonate	Tons
SQ	Sodium Tripolyphosphate	Tons
SS	Sulphur	Tons
SY	Sylvite-Raw Ore	Tons
TD	Tar Sand	Tons
TF	Titanium Oxide	Tons
TG	Tripoli	Tons
TJ	Trona Ore	Tons
WW	Tungsten	Tons
UU	Uranium Concentrate (Yellow Cake)	Pounds
UA	Uranium-Raw Ore	Tons
VV	Vanadium	Tons
WA	Wavellite	Specimen
ZN	Zinc	Pounds
ZA	Zinc Concentrate	Tons
ZB	Zinc Concentrate (Mill-equivalent)	Tons

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Table 1.--Revenues from Federal and Indian mineral leases in the United States, 1980-89

	Royalties	Minimum Royalties	Rents	Bonuses	Total
1980					
Offshore Federal..	$2,136,663,425	$ 2,284,553	$ 19,055,150	$4,204,640,257	$ 6,362,643,385
Onshore Federal...	705,188,417	---	D/I	22,982,316	728,170,733
Indian............	119,201,383	---	D/I	---	119,201,383
Total...........	$2,961,053,225	$ 2,284,553	$ 19,055,150	$4,227,622,573	$ 7,210,015,501
1981					
Offshore Federal..	$3,288,550,224	$ 2,250,300	$ 21,731,035	$6,652,980,897	$ 9,965,512,456
Onshore Federal...	964,686,380	---	D/I	128,673,005	1,093,359,385
Indian............	161,473,757	---	D/I	---	161,473,757
Total...........	$4,414,710,361	$ 2,250,300	$ 21,731,035	$6,781,653,902	$11,220,345,598
1982					
Offshore Federal..	$3,814,871,635	$ 2,393,759	$ 20,055,201	$3,987,490,009	$ 7,824,810,604
Onshore Federal...	972,481,830	---	154,728,000	125,270,858	1,252,480,688
Indian............	162,726,747	---	4,656,065	---	167,382,812
Total...........	$4,950,080,212	$ 2,393,759	$179,439,266	$4,112,760,867	$ 9,244,674,104
1983					
Offshore Federal..	$3,454,318,079	$ 4,463,658	$ 32,463,097	$5,749,016,369	$ 9,240,261,203
Onshore Federal...	962,584,998	---	129,511,928	62,108,205	1,154,205,131
Indian............	156,373,198	---	3,621,550	---	159,994,748
Total...........	$4,573,276,275	$ 4,463,658	$165,596,575	$5,811,124,574	$10,554,461,082
1984					
Offshore Federal..	$3,964,180,673	$ 3,458,139	$ 35,607,835	$3,928,876,308	$ 7,932,122,955
Onshore Federal...	1,016,695,332	---	117,754,744	50,068,801	1,184,518,877
Indian............	128,386,900	---	3,576,549	---	131,963,449
Total...........	$5,109,262,905	$ 3,458,139	$156,939,128	$3,978,945,109	$ 9,248,605,281

NOTE: D/I indicates that data are incomplete for the revenue source during the time period.

Federal onshore minimum royalties are included in Federal onshore royalties for 1980-84. Minimum roy-

Indian rent revenues represent fiscal year data from Bureau of Indian Affairs (BIA) records for 1982-87. for 1988-89.

Offshore Federal bonus revenues represent calendar year data from U.S. Geological Survey records for Bureau of Land Management Public Land Statistics, for 1980-87. Onshore Federal bonus revenues repre-

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Table 1.--Revenues from Federal and Indian mineral leases in the United States, 1980-89 (cont.)

	Royalties	Minimum Royalties	Rents	Bonuses	Total
1985					
Offshore Federal..	$3,638,813,376	$ 4,067,321	$ 61,866,436	$1,543,577,714	$ 5,248,324,847
Onshore Federal...	992,953,891	1,782,388	105,809,280	47,594,759	1,148,140,318
Indian............	139,424,708	---	3,372,750	---	142,797,458
Total...........	$4,771,191,975	$ 5,849,709	$171,048,466	$1,591,172,473	$ 6,539,262,623
1986					
Offshore Federal..	$2,559,660,623	$ 5,176,608	$ 52,958,237	$ 187,094,747	$ 2,804,890,215
Onshore Federal...	664,470,423	7,921,348	73,453,353	30,209,062	776,054,186
Indian............	105,028,658	---	3,018,833	---	108,047,491
Total...........	$3,329,159,704	$13,097,956	$129,430,423	$ 217,303,809	$ 3,688,991,892
1987					
Offshore Federal..	$2,351,164,026	$21,399,332	$ 74,642,712	$ 497,247,006	$ 2,944,453,076
Onshore Federal...	682,411,009	14,377,320	61,449,391	34,752,714	792,990,434
Indian............	104,787,583	---	1,206,406	---	105,993,989
Total...........	$3,138,362,618	$35,776,652	$137,298,509	$ 531,999,720	$ 3,843,437,499
1988					
Offshore Federal..	$2,078,601,613	$16,822,821	$ 61,433,545	$1,234,587,634	$ 3,391,445,613
Onshore Federal...	649,534,932	11,279,396	64,810,845	59,394,838	785,020,011
Indian............	112,282,668	---	1,255,603	---	113,538,271
Total...........	$2,840,419,213	$28,102,217	$127,499,993	$1,293,982,472	$ 4,290,003,895
1989					
Offshore Federal..	$2,151,389,563	$38,890,914	$ 79,247,653	$ 645,646,870	$ 2,915,175,000
Onshore Federal...	703,271,378	14,596,315	64,582,840	93,490,354	875,940,887
Indian............	122,429,802	---	1,454,523	---	123,884,325
Total...........	$2,977,090,743	$53,487,229	$145,285,016	$ 739,137,224	$ 3,915,000,212

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alties are not collected from Indian leases.

Indian rent revenues represent calendar year data from Minerals Management Service (MMS) records

1980 and MMS records for 1981-89. Onshore Federal bonus revenues represent fiscal year data from
sent calendar year data from MMS records for 1988-89. Indian bonus revenues are collected by BIA.

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89

	1920-79	1980	1981	1982	1983	1984
Alabama						
Oil in Barrels						
Volume	492,015	10,642	4,243	3,900	3,750	18,578
Market Value	$ 1,728,259	$ 141,479	$ 153,722	$ 124,750	$ 113,888	$ 536,018
Royalties	$ 182,849	$ 45,882	$ 34,672	$ 15,596	$ 14,236	$ 67,023
Gas in Mcf						
Volume	7,826	18,700	40,055	45,000	47,500	170,213
Market Value	$ 7,961	$ 51,134	$ 101,067	$ 117,000	$ 129,675	$ 649,312
Royalties	$ 996	$ 6,557	$ 12,746	$ 14,625	$ 16,209	$ 81,165
Coal in Tons						
Volume	1,645,820	27,780	0	23,544	95,652	23,197
Market Value	$ 5,348,206	$ 791,715	0	$ 978,722	$ 4,021,962	$ 1,016,025
Royalties	$ 262,924	$ 31,669	$ 7,247	$ 39,149	$ 160,879	$ 40,641
Other Products						
Market Value	$ 27,381	$ 2,497	$ 120,439	$ 10,879	$ 12,619	$ 14,150
Royalties	$ 3,866	$ 792	$ 3,516	$ 1,872	$ 2,395	$ 2,968
Total Royalties All Minerals	**$ 450,635**	**$ 84,900**	**$ 58,181**	**$ 71,242**	**$ 193,719**	**$ 191,797**

	1920-79	1980	1981	1982	1983	1984
Alaska*						
Oil in Barrels						
Volume	187,975,957	3,937,311	3,095,291	3,141,500	3,125,100	1,757.541
Market Value	$ 701,012,392	$ 37,946,840	$ 91,346,010	$ 87,396,530	$ 81,190,098	$ 44,605,543
Royalties	$ 83,220,549	$ 4,751,805	$ 11,418,252	$ 10,924,566	$ 10,148,762	$ 5,557,160
Gas in Mcf						
Volume	752,777,981	81,370,875	88,773,942	93,500,000	87,493,000	76,556,222
Market Value	$ 191,310,505	$ 49,959,224	$ 77,984,832	$ 105,655,000	$ 104,991,100	$ 55,120,480
Royalties	$ 23,021,434	$ 6,244,903	$ 9,748,104	$ 13,206,875	$ 13,123,950	$ 6,890,060
Coal in Tons						
Volume	18,376,127	0	0	0	0	0
Market Value	$ 131,760,234	0	0	0	0	0
Royalties	$ 2,075,108	0	0	0	0	0
Other Products						
Market Value	$ 2,209,888	$ 87,788	$ 619,015	$ 787,500	$ 1,872,000	$ 941,066
Royalties	$ 262,462	$ 10,974	$ 77,377	$ 98,437	$ 234,000	$ 117,664
Total Royalties All Minerals	**$ 108,579,553**	**$ 11,007,682**	**$ 21,243,733**	**$ 24,229,878**	**$ 23,506,712**	**$ 12,564,884**

*Beginning in 1984, data do not include minerals production or royalty revenues from any lands that have attributed to the reclassification of a number of Federal onshore leases during the year. The been excluded from this report.

Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Alabama
						Oil in Barrels
51,190	97,723	19,500	31,535	18,671	751,747	Volume
$ 1,421,449	$ 1,697,511	$ 51,490	$ 484,215	$ 323,274	$ 6,776,055	Market Value
$ 169,282	$ 160,195	$ 89,868	$ 106,374	$ 71,091	$ 957,068	Royalties
						Gas in Mcf
245,457	284,485	(32,355)	124,892	116,542	1,068,315	Volume
$ 792,608	$ 536,224	$ (41,043)	$ 197,627	$ 215,674	$ 2,757,239	Market Value
$ 99,004	$ 46,416	$ (4,971)	$ 24,737	$ 26,047	$ 323,531	Royalties
						Coal in Tons
0	0	0	0	147,473	1,963,466	Volume
0	0	0	0	$ 5,649,348	$ 17,805,978	Market Value
0	0	0	0	$ 395,580	$ 938,089	Royalties
						Other Products
$ 7,029	$ 12,129	$ 657	$ 699	$ 13,397	$ 221,876	Market Value
$ 1,731	$ 2,534	$ 260	$ 279	$ 1,549	$ 21,762	Royalties
						Total Royalties
$ 270,017	**$ 209,145**	**$ 85,157**	**$ 131,390**	**$ 494,267**	**$ 2,240,450**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Alaska
						Oil in Barrels
1,642,880	1,531,448	1,375,912	739,102	2,854	208,324,896	Volume
$ 40,204,022	$ 21,920,806	$ 22,087,643	$ 10,972,761	$ 47,972	$ 1,138,730,617	Market Value
$ 5,004,348	$ 2,720,962	$ 2,737,168	$ 1,359,683	$ 6,001	$ 137,849,256	Royalties
						Gas in Mcf
63,418,259	50,137,932	47,085,856	28,776,378	4,356,306	1,374,246,751	Volume
$ 83,209,227	$ 77,629,588	$ 57,790,567	$ 35,970,473	$ 3,877,112	$ 843,498,108	Market Value
$ 10,918,247	$ 10,901,543	$ 8,224,121	$ 4,496,309	$ 550,550	$ 107,326,096	Royalties
						Coal in Tons
0	0	0	0	0	18,376,127	Volume
0	0	0	0	0	$ 131,760,234	Market Value
0	0	0	0	0	$ 2,075,108	Royalties
						Other Products
$ 1,453,224	$ 592,698	$ 868,799	$ 460,133	$ 4,479	$ 9,896,590	Market Value
$ 181,942	$ 74,087	$ 108,515	$ 57,234	$ 421	$ 1,223,113	Royalties
						Total Royalties
$ 16,104,537	**$ 13,696,592**	**$ 11,069,804**	**$ 5,913,226**	**$ 556,972**	**$ 248,473,573**	**All Minerals**

been transferred to Alaska Natives. The decline in production and revenues in 1989 is primarily
reclassified leases involve lands that have been transferred to Alaska Natives and have subsequently

Table 10.–Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Arizona						
Gas in Mcf						
Volume	124,822	0	0	0	0	0
Market Value	$ 62,572	0	0	0	0	0
Royalties	$ 37,551	0	0	0	0	0
Other Products						
Market Value	$ 8,004,634	0	0	0	0	0
Royalties	$ 519,428	0	0	0	0	0
Total Royalties						
All Minerals	**$ 556,979**	**0**	**0**	**0**	**0**	**0**

	1920-79	1980	1981	1982	1983	1984
Arkansas						
Oil in Barrels						
Volume	47,634	478	225	329	450	121
Market Value	$ 127,261	$ 7,257	$ 16,344	$ 11,542	$ 12,825	$ 3,267
Royalties	$ 18,902	$ 1,209	$ 2,290	$ 1,443	$ 1,603	$ 408
Gas in Mcf						
Volume	38,225,971	4,935,402	5,328,022	5,044,312	4,750,000	5,373,582
Market Value	$ 23,739,257	$ 8,635,188	$ 7,610,781	$ 11,682,636	$ 12,604,600	$ 16,233,502
Royalties	$ 3,388,949	$ 1,237,931	$ 1,012,211	$ 1,622,411	$ 1,575,575	$ 1,973,767
Other Products						
Market Value	$ 1,741,590	$ (42,811)	$ 8,415	$ 11,992	$ 7,978	$ 12,758
Royalties	$ 68,106	$ (5,673)	$ 260	$ 600	$ 399	$ 637
Total Royalties						
All Minerals	**$ 3,475,957**	**$ 1,233,467**	**$ 1,014,761**	**$ 1,624,454**	**$ 1,577,577**	**$ 1,974,812**

	1920-79	1980	1981	1982	1983	1984
California						
Oil in Barrels						
Volume	1,243,064,488	17,582,943	20,544,840	21,702,000	20,650,000	20,065,310
Market Value	$ 3,028,575,727	$ 411,036,298	$ 487,056,185	$ 518,258,800	$ 454,300,000	$ 427,536,380
Royalties	$ 372,783,866	$ 50,435,845	$ 55,445,428	$ 57,124,100	$ 56,787,500	$ 53,446,459
Gas in Mcf						
Volume	1,566,346,813	7,889,193	6,293,799	6,050,000	5,750,100	8,770,616
Market Value	$ 280,209,817	$ 13,[illegible],590	$ 13,927,177	$ 16,892,500	$ 18,802,827	$ 30,753,749
Royalties	$ 48,024,861	$ 3,11[illegible],719	$ 2,982,241	$ 3,231,400	$ 3,595,100	$ 3,718,648
Coal in Tons						
Volume	1,257	0	0	0	0	0
Market Value	$ 3,190	0	0	0	0	0
Royalties	$ 299	0	0	0	0	0
Other Products						
Market Value	$ 1,319,985,930	$ 114,215,427	$ 180,939,574	$ 164,521,234	$ 47,455,875	$ 180,457,994
Royalties	$ 58,182,724	$ 6,110,397	$ 9,541,043	$ 8,850,801	$ 4,156,176	$ 14,664,423
Total Royalties						
All Minerals	**$ 478,991,750**	**$ 59,656,961**	**$ 67,968,712**	**$ 69,206,301**	**$ 64,538,776**	**$ 71,829,530**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Arizona
						Gas in Mcf
0	0	0	0	0	124,822	Volume
0	0	0	0	0	$ 62,572	Market Value
0	0	0	0	0	$ 37,551	Royalties
						Other Products
0	0	0	0	0	$ 8,004,634	Market Value
0	0	0	0	0	$ 519,428	Royalties
						Total Royalties
0	0	0	0	0	$ 556,979	All Minerals

1985	1986	1987	1988	1989	1920-89	
						Arkansas
						Oil in Barrels
609	3,705	2,479	985	0	57,015	Volume
$ 15,250	$ 56,403	$ 40,952	$ 14,690	0	$ 305,791	Market Value
$ 1,903	$ 6,945	$ 5,124	$ 1,836	0	$ 41,663	Royalties
						Gas in Mcf
5,645,865	5,018,855	5,244,438	7,165,772	5,419,409	92,151,628	Volume
$ 17,526,046	$ 13,774,736	$ 11,658,965	$ 14,268,539	$ 12,738,484	$ 150,472,734	Market Value
$ 2,317,457	$ 1,797,837	$ 1,505,415	$ 1,865,054	$ 1,664,669	$ 19,961,276	Royalties
						Other Products
$ 28,317	$ 35,209	$ 113,558	$ 218,306	$ 81,140	$ 2,216,452	Market Value
$ 1,416	$ 1,760	$ 5,203	$ 11,036	$ 4,053	$ 87,797	Royalties
						Total Royalties
$ 2,320,776	$ 1,806,542	$ 1,515,742	$ 1,877,926	$ 1,668,722	$ 20,090,736	All Minerals

1985	1986	1987	1988	1989	1920-89	
						California
						Oil in Barrels
24,710,939	20,826,447	19,884,609	18,712,811	17,721,457	1,445,465,844	Volume
$ 528,544,151	$ 252,362,151	$ 257,417,946	$ 194,252,318	$ 225,160,396	$ 6,784,500,352	Market Value
$ 55,194,237	$ 30,908,583	$ 31,791,870	$ 23,950,409	$ 28,644,835	$ 816,513,132	Royalties
						Gas in Mcf
6,111,398	6,524,243	5,156,771	4,174,018	6,502,489	1,629,569,440	Volume
$ 18,960,223	$ 15,239,086	$ 10,174,615	$ 7,556,939	$ 12,838,485	$ 439,305,008	Market Value
$ 4,041,505	$ 3,065,423	$ 2,126,547	$ 1,656,985	$ 2,073,986	$ 77,627,415	Royalties
						Coal in Tons
0	0	0	0	0	1,257	Volume
0	0	0	0	0	$ 3,190	Market Value
0	0	0	0	0	$ 299	Royalties
						Other Products
$ 209,134,018	$ 237,903,911	$ 215,299,231	$ 218,097,810	$ 234,664,845	$ 3,122,675,849	Market Value
$ 18,735,038	$ 22,042,944	$ 19,188,719	$ 18,474,034	$ 19,076,470	$ 199,022,769	Royalties
						Total Royalties
$ 77,970,780	$ 56,016,950	$ 53,107,136	$ 44,081,428	$ 49,795,291	$ 1,093,163,615	All Minerals

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Colorado						
Oil in Barrels						
Volume	441,897,376	9,782,634	9,678,585	9,121,990	10,150,300	9,344,013
Market Value	$ 1,690,904,900	$ 176,872,098	$ 324,773,799	$ 250,772,958	$ 260,816,260	$ 258,485,907
Royalties	$ 269,631,227	$ 30,238,440	$ 52,858,527	$ 40,604,232	$ 44,589,987	$ 41,003,709
Gas in Mcf						
Volume	1,009,985,891	55,762,010	48,254,910	53,833,000	48,981,201	60,598,213
Market Value	$ 262,446,998	$ 76,838,840	$ 98,611,608	$ 118,274,286	$ 118,165,441	$ 150,766,403
Royalties	$ 29,946,731	$ 9,199,101	$ 11,964,638	$ 15,923,374	$ 14,380,881	$ 18,122,573
Coal in Tons						
Volume	64,471,077	9,390,841	11,144,383	9,691,354	10,405,510	11,735,302
Market Value	$ 607,325,094	$ 182,050,641	$ 229,824,111	$ 225,322,986	$ 239,489,526	$ 266,743,414
Royalties	$ 14,172,497	$ 8,865,003	$ 12,892,030	$ 11,642,321	$ 12,960,338	$ 15,170,851
Other Products						
Market Value	$ 43,211,380	$ 9,913,848	$ 8,413,294	$ 8,325,580	$ 21,807,547	$ 48,104,935
Royalties	$ 2,187,034	$ 637,178	$ 452,441	$ 442,221	$ 1,961,369	$ 5,692,273
Total Royalties All Minerals	**$ 315,937,489**	**$ 48,939,722**	**$ 78,167,636**	**$ 68,612,148**	**$ 73,892,575**	**$ 79,989,406**

	1920-79	1980	1981	1982	1983	1984
Florida						
Oil in Barrels						
Volume	7,256	910	0	0	0	0
Market Value	$ 90,418	$ 16,865	0	0	0	0
Royalties	$ 11,303	$ 2,108	0	0	0	0
Other Products						
Market Value	$ 342,263	$ 2,249,442	$ 4,135,528	$ 2,925,038	$ 12,933,446	$ 5,951,727
Royalties	$ 20,267	$ 113,749	$ 209,133	$ 146,252	$ 651,259	$ 297,721
Total Royalties All Minerals	**$ 31,570**	**$ 115,857**	**$ 209,133**	**$ 146,252**	**$ 651,259**	**$ 297,721**

	1920-79	1980	1981	1982	1983	1984
Georgia						
Other Products						
Market Value	$ 2,705,921	$ 204,373	$ 190,070	$ 71,156	$ 4,083	$ 10,014
Royalties	$ 99,013	$ 9,462	$ 9,962	$ 3,188	$ 184	$ 495
Total Royalties All Minerals	**$ 99,013**	**$ 9,462**	**$ 9,962**	**$ 3,188**	**$ 184**	**$ 495**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Colorado
						Oil in Barrels
7,860,164	7,412,090	8,102,745	7,919,326	7,588,626	528,857,849	Volume
$ 198,790,675	$ 107,539,629	$ 141,216,844	$ 118,782,823	$ 143,125,594	$ 3,672,081,487	Market Value
$ 33,712,986	$ 16,629,286	$ 21,440,859	$ 17,397,637	$ 21,947,984	$ 590,054,874	Royalties
						Gas in Mcf
54,625,792	44,469,099	37,251,492	38,942,606	51,832,494	1,504,536,708	Volume
$ 145,418,918	$ 106,678,570	$ 63,616,259	$ 63,152,510	$ 80,821,748	$ 1,284,791,581	Market Value
$ 16,010,584	$ 13,707,153	$ 7,064,882	$ 7,827,994	$ 9,640,635	$ 153,788,546	Royalties
						Coal in Tons
9,785,279	10,296,466	6,922,458	8,992,859	10,583,253	163,418,782	Volume
$ 246,710,955	$ 194,789,903	$ 173,920,774	$ 183,596,741	$ 215,324,252	$ 2,765,098,397	Market Value
$ 14,727,801	$ 20,737,812	$ 14,780,341	$ 12,146,642	$ 16,103,220	$ 154,198,856	Royalties
						Other Products
$ 110,046,454	$ 104,686,185	$ 85,326,453	$ 115,312,912	$ 155,485,185	$ 710,633,773	Market Value
$ 13,174,761	$ 12,544,583	$ 10,489,745	$ 9,346,251	$ 10,210,984	$ 67,138,840	Royalties
$ 77,626,132	**$ 63,618,834**	**$ 53,775,827**	**$ 46,718,524**	**$ 57,902,823**	**$ 965,181,116**	**Total Royalties All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Florida
						Oil in Barrels
0	25,384	21,906	41,466	35,708	132,630	Volume
0	$ 360,374	$ 387,618	$ 652,781	$ 642,714	$ 2,150,770	Market Value
0	$ 45,047	$ 48,452	$ 81,597	$ 80,938	$ 269,445	Royalties
						Other Products
$ 4,129,622	$ 1,621,856	$ 4,368	0	0	$ 34,293,290	Market Value
$ 206,482	$ 81,093	$ 218	0	0	$ 1,726,174	Royalties
$ 206,482	**$ 126,140**	**$ 48,670**	**$ 81,597**	**$ 80,938**	**$ 1,995,619**	**Total Royalties All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Georgia
						Other Products
0	0	0	$ 136	$ 192	$ 3,185,945	Market Value
0	0	0	$ 7	$ 10	$ 122,321	Royalties
0	**0**	**0**	**$ 7**	**$ 10**	**$ 122,321**	**Total Royalties All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

		1920-79	1980	1981	1982	1983	1984
Idaho							
Coal in Tons							
Volume		31,574	0	0	0	0	0
Market Value	$	88,984	0	0	0	0	0
Royalties	$	7,228	0	0	0	0	0
Other Products							
Market Value	$	230,391,313 $	39,715,880 $	38,526,050 $	14,580,941 $	44,932,792 $	62,331,421
Royalties	$	14,403,829 $	2,397,104 $	2,228,457 $	731,730 $	2,251,340 $	3,125,387
Total Royalties							
All Minerals	**$**	**14,411,057 $**	**2,397,104 $**	**2,228,457 $**	**731,730 $**	**2,251,340 $**	**3,125,387**

		1920-79	1980	1981	1982	1983	1984
Illinois							
Oil in Barrels							
Volume		731	79	0	0	0	92
Market Value	$	11,503 $	2,809	0	0	0 $	2,666
Royalties	$	1,917 $	468	0	0	0 $	444
Coal in Tons							
Volume		24,170	0	0	0	0	0
Market Value	$	92,128	0	0	0	0	0
Royalties	$	3,138	0	0	0	0	0
Other Products							
Market Value	$	18,672,630 $	1,292,004 $	1,731,804 $	12,158	0 $	550,124
Royalties	$	757,699 $	58,416 $	77,931 $	547	0 $	24,966
Total Royalties							
All Minerals	**$**	**762,754 $**	**58,884 $**	**77,931 $**	**547**	**0 $**	**25,410**

		1920-79	1980	1981	1982	1983	1984
Indiana							
Oil in Barrels							
Volume		5,679	0	0	0	0	0
Market Value	$	15,529	0	0	0	0	0
Royalties	$	1,859	0	0	0	0	0
Total Royalties							
All Minerals	**$**	**1,859**	**0**	**0**	**0**	**0**	**0**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Idaho
						Coal in Tons
0	0	0	0	0	31,574	Volume
0	0	0	0	0	$ 88,984	Market Value
0	0	0	0	0	$ 7,228	Royalties
						Other Products
$ 65,377,357	$ 35,637,173	$ 44,559,403	$ 45,515,100	$ 57,657,206	$ 679,224,636	Market Value
$ 3,220,911	$ 1,751,236	$ 2,227,493	$ 3,144,387	$ 2,958,835	$ 38,440,709	Royalties
						Total Royalties
$ 3,220,911	**$ 1,751,236**	**$ 2,227,493**	**$ 3,144,387**	**$ 2,958,835**	**$ 38,447,937**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Illinois
						Oil in Barrels
0	0	0	14,539	6,523	21,964	Volume
0	0	0	$ 218,517	$ 105,622	$ 341,117	Market Value
0	0	0	$ 27,315	$ 13,367	$ 43,511	Royalties
						Coal in Tons
0	0	0	0	0	24,170	Volume
0	0	0	0	0	$ 92,128	Market Value
0	0	0	0	0	$ 3,138	Royalties
						Other Products
$ 1,342,175	$ 761,008	0	$ 136,315	0	$ 24,498,218	Market Value
$ 62,222	$ 37,367	0	$ 6,135	0	$ 1,025,283	Royalties
						Total Royalties
$ 62,222	**$ 37,367**	**0**	**$ 33,450**	**$ 13,367**	**$ 1,071,932**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Indiana
						Oil in Barrels
0	0	0	0	0	5,679	Volume
0	0	0	0	0	$ 15,529	Market Value
0	0	0	0	0	$ 1,859	Royalties
						Total Royalties
0	**0**	**0**	**0**	**0**	**$ 1,859**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Kansas						
Oil in Barrels						
Volume	14,359,666	351,749	285,680	330,565	350,500	274,083
Market Value	$ 50,546,798	$ 5,557,814	$ 10,218,778	$ 10,299,723	$ 9,989,250	$ 7,815,363
Royalties	$ 6,918,374	$ 740,411	$ 1,370,189	$ 1,400,628	$ 1,248,656	$ 1,026,721
Gas in Mcf						
Volume	343,762,868	11,450,442	6,841,684	9,719,373	8,747,100	(2,545,546)
Market Value	$ 64,276,086	$ 9,807,317	$ 5,785,384	$ 12,495,566	$ 15,482,367	$ (3,928,956)
Royalties	$ 7,911,008	$ 1,230,041	$ 729,335	$ 1,584,177	$ 1,961,616	$ 851,847
Other Products						
Market Value	$ 5,017	0	0	0	0	$ 214,998
Royalties	$ 302	0	0	0	0	$ 26,875
Total Royalties All Minerals	**$ 14,829,684**	**$ 1,970,452**	**$ 2,099,524**	**$ 2,984,805**	**$ 3,210,272**	**$ 1,905,443**

	1920-79	1980	1981	1982	1983	1984
Kentucky						
Oil in Barrels						
Volume	2,976,570	6,497	4,892	3,700	4,650	5,529
Market Value	$ 9,539,416	$ 242,734	$ 177,453	$ 114,700	$ 133,920	$ 159,319
Royalties	$ 1,427,187	$ 36,406	$ 26,618	$ 17,205	$ 16,740	$ 23,247
Gas in Mcf						
Volume	754,394	279,887	225,251	205,000	182,000	378,124
Market Value	$ 675,814	$ 335,864	$ 270,991	$ 276,750	$ 476,840	$ 1,129,051
Royalties	$ 77,387	$ 36,892	$ 30,398	$ 34,590	$ 59,605	$ 140,872
Coal in Tons						
Volume	2,991,881	2,992	0	0	0	0
Market Value	$ 25,917,641	$ 89,727	0	0	0	0
Royalties	$ 1,003,474	$ 3,589	0	0	0	0
Total Royalties All Minerals	**$ 2,508,048**	**$ 76,887**	**$ 57,016**	**$ 51,795**	**$ 76,345**	**$ 164,119**

	1920-79	1980	1981	1982	1983	1984
Louisiana						
Oil in Barrels						
Volume	145,655,048	2,054,703	1,464,854	1,734,145	2,004,500	1,497,969
Market Value	$ 510,067,485	$ 30,427,595	$ 51,622,050	$ 45,220,999	$ 59,132,750	$ 44,239,467
Royalties	$ 60,658,840	$ 3,583,097	$ 5,686,906	$ 5,913,809	$ 7,391,594	$ 5,572,088
Gas in Mcf						
Volume	1,397,105,638	17,955,861	15,512,606	17,177,498	15,459,300	15,064,559
Market Value	$ 257,962,007	$ 14,666,618	$ 13,040,634	$ 19,944,754	$ 23,807,322	$ 19,262,162
Royalties	$ 37,390,233	$ 1,932,802	$ 1,761,926	$ 2,599,118	$ 3,102,094	$ 2,478,550
Other Products						
Market Value	$ 40,622,159	$ 5,788,422	$ 7,024,299	$ 7,194,180	$ 6,330,000	$ 6,210,495
Royalties	$ 6,609,649	$ 912,874	$ 1,072,336	$ 1,026,086	$ 902,800	$ 867,694
Total Royalties All Minerals	**$ 104,658,722**	**$ 6,428,773**	**$ 8,521,168**	**$ 9,539,013**	**$ 11,396,488**	**$ 8,918,332**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Kansas
						Oil in Barrels
247,873	230,237	256,019	334,921	280,543	17,301,836	Volume
$ 6,285,339	$ 3,551.778	$ 4,353,871	$ 5,139,298	$ 5,011,081	$ 118,769,093	Market Value
$ 820,524	$ 455,244	$ 562,244	$ 675,791	$ 630,839	$ 15,849,621	Royalties
						Gas in Mcf
8,005,106	7,901,163	7,710,397	10,958,785	11,211,249	423,762,621	Volume
$ 10,094,042	$ 8,950,958	$ 9,906,102	$ 15,313,237	$ 16,820,878	$ 165,002,981	Market Value
$ 1,098,029	$ 1,005,418	$ 1,209,138	$ 1,910,998	$ 2,032,794	$ 21,524,401	Royalties
						Other Products
$ 257,123	$ 171,039	$ 85,971	$ 269,096	$ 571,053	$ 1,574,297	Market Value
$ 32,141	$ 21,380	$ 10,747	$ 32,078	$ 59,566	$ 183,089	Royalties
						Total Royalties
$ 1,950,694	**$ 1,482,042**	**$ 1,782,129**	**$ 2,618,867**	**$ 2,723,199**	**$ 37,557,111**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Kentucky
						Oil in Barrels
4,317	4,076	4,400	5,721	3,944	3,024,296	Volume
$ 116,369	$ 62,899	$ 75,910	$ 86,173	$ 68,842	$ 10,777,735	Market Value
$ 17,455	$ 9,435	$ 11,304	$ 12,693	$ 10,177	$ 1,608,467	Royalties
						Gas in Mcf
372,860	329,613	290,100	239,215	257,069	3,513,513	Volume
$ 1,113,536	$ 1,014,076	$ 878,675	$ 679,766	$ 656,800	$ 7,508,163	Market Value
$ 139,061	$ 139,669	$ 109,834	$ 84,971	$ 81,596	$ 934,875	Royalties
						Coal in Tons
0	0	0	238,423	142,121	3,375,417	Volume
0	0	0	$ 6,023,729	$ 3,262,187	$ 35,293,284	Market Value
0	0	0	$ 484,153	$ 268,962	$ 1,760,178	Royalties
						Total Royalties
$ 156,516	**$ 149,104**	**$ 121,138**	**$ 581,817**	**$ 360,735**	**$ 4,303,520**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Louisiana
						Oil in Barrels
1,304,169	1,349,207	1,430,544	1,051,275	861,517	160,407,931	Volume
$ 36,128,522	$ 22,282,197	$ 25,395,129	$ 16,531,624	$ 15,452,309	$ 856,500,127	Market Value
$ 3,804,766	$ 2,345,337	$ 2,786,851	$ 1,847,756	$ 1,770,393	$ 101,361,437	Royalties
						Gas in Mcf
11,883,842	11,491,304	11,871,768	12,651,360	14,207,373	1,540,381,109	Volume
$ 14,819,881	$ 15,784,151	$ 18,288,763	$ 20,234,725	$ 25,261,143	$ 443,072,160	Market Value
$ 1,962,708	$ 2,161,330	$ 2,657,402	$ 2,814,206	$ 3,488,318	$ 62,348,687	Royalties
						Other Products
$ 4,455,942	$ 2,830,003	$ 2,568,431	$ 3,191,890	$ 2,884,723	$ 89,100,544	Market Value
$ 659,450	$ 422,089	$ 382,218	$ 390,145	$ 278,419	$ 13,523,760	Royalties
						Total Royalties
$ 6,426,924	**$ 4,928,756**	**$ 5,826,471**	**$ 5,052,107**	**$ 5,537,130**	**$ 177,233,884**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Maine						
Other Products						
Market Value $	9,711	0	0	0	0	0
Royalties $	818	0	0	0	0	0
Total Royalties All Minerals $	**818**	**0**	**0**	**0**	**0**	**0**

	1920-79	1980	1981	1982	1983	1984
Maryland						
Gas in Mcf						
Volume	3,800,246	4,482	2,557	2,400	2,160	991
Market Value $	1,033,644 $	9,905 $	4,952 $	4,992 $	5,530 $	2,168
Royalties $	129,946 $	1,238 $	619 $	624 $	691 $	271
Total Royalties All Minerals $	**129,946 $**	**1,238 $**	**619 $**	**624 $**	**691 $**	**271**

	1920-79	1980	1981	1982	1983	1984
Michigan						
Oil in Barrels						
Volume	1,038,295	99,714	74,435	64,000	53,500	160,758
Market Value $	6,698,479 $	2,443,015 $	2,646,940 $	1,920,000 $	1,551,500 $	3,951,348
Royalties $	888,184 $	301,700 $	352,759 $	240,000 $	193,938 $	749,819
Gas in Mcf						
Volume	4,038,899	594,958	575,628	560,000	498,552	903,731
Market Value $	3,313,778 $	946,864 $	1,681,725 $	1,708,000 $	1,691,472 $	3,319,056
Royalties $	470,717 $	113,029 $	210,483 $	213,500 $	211,428 $	345,223
Other Products						
Market Value $	4,659	0	0	0	0 $	193,845
Royalties $	470	0	0	0	0 $	27,400
Total Royalties All Minerals $	**1,359,371 $**	**414,729 $**	**563,242 $**	**453,500 $**	**405,366 $**	**1,122,442**

	1920-79	1980	1981	1982	1983	1984
Minnesota						
Other Products						
Market Value $	442,883 $	203,218 $	3,259,472 $	32,522 $	1,292,891 $	1,405,665
Royalties $	16,143 $	8,129 $	130,379 $	3,533 $	39,185 $	58,018
Total Royalties All Minerals $	**16,143 $**	**8,129 $**	**130,379 $**	**3,533 $**	**39,185 $**	**58,018**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1985	1986	1987	1988	1989	1920-89	
							Maine
							Other Products
	0	0	0	0	0 $	9,711	Market Value
	0	0	0	0	0 $	818	Royalties
							Total Royalties
	0	0	0	0	0 $	818	All Minerals

	1985	1986	1987	1988	1989	1920-89	
							Maryland
							Gas in Mcf
	10,055	255	10,439	6,391	8,037	3,848,013	Volume
$	5,991 $	179 $	6,263 $	4,026 $	4,903 $	1,082,553	Market Value
$	749 $	22 $	783 $	503 $	613 $	136,059	Royalties
							Total Royalties
$	749 $	22 $	783 $	503 $	613 $	136,059	All Minerals

	1985	1986	1987	1988	1989	1920-89	
							Michigan
							Oil in Barrels
	135,897	107,167	106,356	99,248	129,963	2,069,333	Volume
$	3,528,948 $	1,732,404 $	1,864,759 $	1,500,129 $	2,234,068 $	30,071,590	Market Value
$	421,155 $	215,187 $	235,682 $	192,311 $	284,442 $	4,075,177	Royalties
							Gas in Mcf
	617,155	1,353,655	1,623,534	3,009,380	3,461,282	17,236,774	Volume
$	2,293,730 $	4,324,905 $	3,467,968 $	7,266,218 $	8,342,392 $	38,356,108	Market Value
$	286,528 $	256,407 $	433,496 $	918,799 $	1,037,312 $	4,496,922	Royalties
							Other Products
$	8,976	0 $	91,189 $	260,012 $	425,468 $	984,149	Market Value
$	2,400	0 $	11,399 $	28,928 $	44,809 $	115,406	Royalties
							Total Royalties
$	710,083 $	471,594 $	680,577 $	1,140,038 $	1,366,563 $	8,687,505	All Minerals

	1985	1986	1987	1988	1989	1920-89	
							Minnesota
							Other Products
$	4,651,525 $	1,551,047 $	9,976,173 $	354,396 $	3,914,456 $	27,084,248	Market Value
$	190,425 $	62,249 $	399,047 $	11,579 $	134,539 $	1,053,226	Royalties
							Total Royalties
$	190,425 $	62,249 $	399,047 $	11,579 $	134,539 $	1,053,226	All Minerals

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Mississippi						
Oil in Barrels						
Volume	47,806,119	798,396	671,983	568,150	465,200	594,180
Market Value $	105,906,349 $	17,952,777 $	22,135,573 $	17,598,750 $	13,607,100 $	24,083,902
Royalties $	22,916,734 $	2,239,068 $	2,698,902 $	2,200,325 $	1,700,888 $	3,005,419
Gas in Mcf						
Volume	72,184,441	208,768	898,231	869,200	782,280	5,942,604
Market Value $	15,463,660 $	358,035 $	2,204,360 $	2,247,430 $	2,393,777 $	24,051,737
Royalties $	1,649,581 $	49,088 $	1,522,092 $	165,565 $	299,200 $	2,806,365
Other Products						
Market Value $	186,538	0 $	69,691 $	81,000 $	71,300 $	794
Royalties $	11,859	0 $	217 $	250 $	210 $	646
Total Royalties All Minerals $	**24,578,174 $**	**2,288,156 $**	**4,221,211 $**	**2,366,140 $**	**2,000,298 $**	**5,812,430**

	1920-79	1980	1981	1982	1983	1984
Missouri						
Other Products						
Market Value $	1,279,200,857 $	251,760,373 $	144,412,821 $	92,808,570 $	73,837,199 $	100,661,451
Royalties $	56,985,629 $	12,588,211 $	7,169,887 $	4,652,521 $	3,684,368 $	3,750,857
Total Royalties All Minerals $	**56,985,629 $**	**12,588,211 $**	**7,169,887 $**	**4,652,521 $**	**3,684,368 $**	**3,750,857**

	1920-79	1980	1981	1982	1983	1984
Montana						
Oil in Barrels						
Volume	247,890,965	5,881,966	5,779,223	5,036,442	5,028,154	5,202,388
Market Value $	844,021,418 $	96,214,460 $	193,605,300 $	153,889,803 $	140,516,907 $	148,952,661
Royalties $	108,221,967 $	12,070,997 $	22,516,111 $	18,014,642 $	16,830,800 $	17,339,637
Gas in Mcf						
Volume	253,763,894	13,671,805	12,074,867	12,343,537	9,182,406	18,266,587
Market Value $	53,835,391 $	17,895,457 $	19,601,569 $	23,618,454 $	24,846,195 $	41,203,622
Royalties $	5,930,328 $	2,203,978 $	2,372,811 $	2,821,662 $	2,967,733 $	3,238,169
Coal in Tons						
Volume	78,564,928	10,392,536	26,726,838	10,651,879	14,334,618	18,696,290
Market Value $	355,065,030 $	91,086,899 $	324,259,233 $	110,665,774 $	225,181,755 $	289,792,495
Royalties $	11,040,228 $	2,676,851 $	6,245,099 $	9,516,623 $	7,946,687 $	9,708,668
Other Products						
Market Value $	75,190,761 $	4,356,148 $	3,477,891 $	3,946,699 $	5,156,294 $	3,187,109
Royalties $	2,805,229 $	124,556 $	142,535 $	153,442 $	213,858 $	422,104
Total Royalties All Minerals $	**127,997,752 $**	**17,076,382 $**	**31,276,556 $**	**30,506,369 $**	**27,959,078 $**	**30,708,578**

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Table 10.–Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Mississippi
						Oil in Barrels
777,449	711,049	624,285	586,271	611,422	54,214,504	Volume
$ 20,576,378	$ 11,114,638	$ 10,947,451	$ 8,787,621	$ 10,771,938	$ 343,482,477	Market Value
$ 2,534,595	$ 1,382,318	$ 1,336,995	$ 1,089,164	$ 1,335,275	$ 42,439,593	Royalties
						Gas in Mcf
3,123,495	1,563,483	1,272,244	997,437	795,980	88,638,163	Volume
$ 9,952,787	$ 3,439,163	$ 2,246,777	$ 1,963,853	$ 1,547,185	$ 65,868,764	Market Value
$ 1,233,003	$ 410,064	$ 288,934	$ 243,580	$ 192,320	$ 8,859,792	Royalties
						Other Products
0	$ 786	0	0	0	$ 412,109	Market Value
0	$ 98	0	0	0	$ 13,280	Royalties
						Total Royalties
$ 3,767,598	**$ 1,792,480**	**$ 1,625,839**	**$ 1,332,744**	**$ 1,527,595**	**$ 51,312,665**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Missouri
						Other Products
$ 102,507,648	$ 86,744,209	$ 143,106,308	$ 211,387,268	$ 247,070,652	$ 2,733,497,356	Market Value
$ 2,440,816	$ 2,678,417	$ 4,460,895	$ 6,852,151	$ 7,765,935	$ 113,029,687	Royalties
						Total Royalties
$ 2,440,816	**$ 2,678,417**	**$ 4,460,895**	**$ 6,852,151**	**$ 7,765,935**	**$ 113,029,687**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Montana
						Oil in Barrels
4,910,149	4,606,038	4,209,570	3,839,065	3,441,239	295,825,199	Volume
$ 124,648,794	$ 68,412,176	$ 68,223,406	$ 53,578,775	$ 55,703,432	$ 1,947,767,132	Market Value
$ 14,502,103	$ 7,548,159	$ 7,665,880	$ 6,092,168	$ 6,362,571	$ 237,165,035	Royalties
						Gas in Mcf
11,267,984	11,099,365	14,968,968	8,390,794	10,422,978	375,453,185	Volume
$ 20,555,209	$ 25,350,887	$ 20,074,876	$ 16,482,316	$ 20,111,668	$ 283,575,644	Market Value
$ 2,521,743	$ 2,588,170	$ 2,504,588	$ 2,053,674	$ 2,459,533	$ 31,662,309	Royalties
						Coal in Tons
21,180,897	24,681,884	21,012,476	20,626,026	23,695,342	270,563,714	Volume
$ 297,466,328	$ 311,291,759	$ 332,226,077	$ 297,352,200	$ 270,581,091	$ 2,904,968,641	Market Value
$ 15,173,896	$ 22,446,731	$ 39,110,631	$ 35,591,525	$ 26,544,365	$ 186,001,304	Royalties
						Other Products
$ 3,566,374	$ 3,611,735	$ 1,765,660	$ 2,163,440	$ 3,281,515	$ 109,703,626	Market Value
$ 311,082	$ 351,316	$ 197,388	$ 147,541	$ 204,389	$ 5,073,440	Royalties
						Total Royalties
$ 32,508,824	**$ 32,934,376**	**$ 49,478,487**	**$ 43,884,908**	**$ 35,570,858**	**$ 459,902,168**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Nebraska						
Oil in Barrels						
Volume	830,068	102,853	119,261	108,492	106,597	139,728
Market Value	$ 6,822,731	$ 3,307,012	$ 4,250,087	$ 3,501,401	$ 3,211,820	$ 4,122,435
Royalties	$ 641,478	$ 513,924	$ 583,363	$ 445,583	$ 416,243	$ 553,226
Gas in Mcf						
Volume	8,877,911	438,667	470,739	388,552	343,920	294,807
Market Value	$ 4,026,473	$ 662,771	$ 630,762	$ 820,959	$ 481,510	$ 391,900
Royalties	$ 665,157	$ 110,462	$ 103,568	$ 136,076	$ 78,670	$ 58,141
Other Products						
Market Value	$ 2,633,873	$ 381,417	$ 490,769	$ 421,644	$ 303,960	$ 212,647
Royalties	$ 227,234	$ 17,166	$ 33,569	$ 28,779	$ 20,200	$ 26,585
Total Royalties All Minerals	**$ 1,533,869**	**$ 641,552**	**$ 720,500**	**$ 610,438**	**$ 515,113**	**$ 637,952**

	1920-79	1980	1981	1982	1983	1984
Nevada						
Oil in Barrels						
Volume	6,042,259	863,716	501,454	525,100	666,800	1,553,498
Market Value	$ 37,778,590	$ 13,726,240	$ 11,873,558	$ 11,946,025	$ 14,002,800	$ 30,602,759
Royalties	$ 4,695,317	$ 1,715,781	$ 1,484,195	$ 1,493,253	$ 1,750,350	$ 3,825,346
Coal in Tons						
Volume	141	0	0	0	0	0
Market Value	$ 207	0	0	0	0	0
Royalties	$ 133	0	0	0	0	0
Other Products						
Market Value	$ 24,886,199	$ 3,513,878	$ 2,526,463	$ 933,767	$ 1,444,181	$ 1,572,244
Royalties	$ 945,017	$ 134,811	$ 101,028	$ 53,052	$ (1,204,133)	$ 111,903
Total Royalties All Minerals	**$ 5,640,467**	**$ 1,850,592**	**$ 1,585,223**	**$ 1,546,305**	**$ 546,217**	**$ 3,937,249**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Nebraska
						Oil in Barrels
158,069	146,834	122,168	102,534	97,335	2,033,939	Volume
$ 4,091,035	$ 2,178,793	$ 2,114,735	$ 1,558,588	$ 1,718,841	$ 36,877,478	Market Value
$ 488,653	$ 269,628	$ 261,912	$ 195,469	$ 218,550	$ 4,588,029	Royalties
						Gas in Mcf
346,366	7,009	0	0	0	11,167,971	Volume
$ 416,806	$ 10,760	0	0	0	$ 7,441,941	Market Value
$ 71,646	$ 1,837	0	0	0	$ 1,225,557	Royalties
						Other Products
$ 106,661	$ 2,743	$ (22,525)	0	0	$ 4,531,189	Market Value
$ 17,777	$ 457	$ (3,754)	0	0	$ 368,013	Royalties
						Total Royalties
$ **578,076**	$ **271,922**	$ **258,158**	$ **195,469**	$ **218,550**	$ **6,181,599**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Nevada
						Oil in Barrels
3,108,782	2,787,446	3,145,419	3,167,416	3,145,254	25,507,144	Volume
$ 58,540,986	$ 26,583,769	$ 33,277,960	$ 28,308,323	$ 38,812,437	$ 305,453,447	Market Value
$ 7,317,621	$ 3,345,201	$ 4,159,745	$ 3,539,249	$ 4,851,555	$ 38,177,613	Royalties
						Coal in Tons
0	0	0	0	0	141	Volume
0	0	0	0	0	$ 207	Market Value
0	0	0	0	0	$ 133	Royalties
						Other Products
$ 2,146,345	$ 5,038,088	$ 7,010,370	$ 15,136,327	$ 25,466,153	$ 89,674,015	Market Value
$ 127,384	$ 314,085	$ 510,909	$ 1,186,001	$ 2,035,145	$ 4,315,202	Royalties
						Total Royalties
$ **7,445,005**	$ **3,659,286**	$ **4,670,654**	$ **4,725,250**	$ **6,886,700**	$ **42,492,948**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
New Mexico						
Oil in Barrels						
Volume	986,138,813	21,664,764	21,796,606	18,368,501	17,637,300	19,611,110
Market Value	$ 3,700,162,705	$ 530,218,728	$ 695,739,128	$ 564,236,227	$ 529,119,000	$ 553,609,916
Royalties	$ 450,821,729	$ 65,322,151	$ 84,424,779	$ 68,138,838	$ 66,139,875	$ 69,449,687
Gas in Mcf						
Volume	12,935,039,734	584,421,135	648,683,299	687,846,386	510,571,286	537,602,876
Market Value	$ 3,999,583,957	$1,064,844,278	$1,341,783,321	$1,652,188,050	$1,470,445,300	$1,441,371,994
Royalties	$ 495,278,400	$ 133,031,227	$ 167,916,224	$ 207,174,936	$ 183,805,660	$ 181,441,663
Coal in Tons						
Volume	19,798,870	6,316,551	9,184,682	4,403,691	1,592,588	4,647,719
Market Value	$ 173,533,612	$ 81,406,221	$ 100,957,236	$ 86,028,883	$ 31,066,567	$ 85,533,487
Royalties	$ 4,324,887	$ 6,982,294	$ 100,219	$ 8,289,584	$ 3,064,208	$ 11,127,684
Other Products						
Market Value	$ 2,997,493,492	$ 297,094,282	$ 289,589,265	$ 338,528,191	$ 220,906,504	$ 210,691,470
Royalties	$ 124,829,610	$ 12,974,943	$ 10,926,572	$ 12,810,349	$ 6,278,080	$ 10,916,707
Total Royalties						
All Minerals	**$ 1,075,254,626**	**$ 218,310,615**	**$ 263,367,794**	**$ 296,413,707**	**$ 259,287,823**	**$ 272,935,741**

	1920-79	1980	1981	1982	1983	1984
North Carolina						
Other Products						
Market Value	$ 315,696	0	0	0	0	0
Royalties	$ 19,154	0	0	0	0	0
Total Royalties						
All Minerals	**$ 19,154**	**0**	**0**	**0**	**0**	**0**

	1920-79	1980	1981	1982	1983	1984
North Dakota						
Oil in Barrels						
Volume	52,823,628	10,102,309	14,895,180	13,819,299	14,528,976	13,439,445
Market Value	$ 271,046,726	$ 316,758,997	$ 537,658,049	$ 445,654,630	$ 447,271,507	$ 388,422,762
Royalties	$ 32,669,123	$ 38,291,737	$ 64,514,108	$ 54,158,827	$ 53,742,847	$ 47,734,009
Gas in Mcf						
Volume	41,531,604	3,805,506	6,970,530	9,919,506	9,732,577	15,393,613
Market Value	$ 5,081,037	$ 7,315,068	$ 18,459,743	$ 28,595,366	$ 35,774,929	$ 39,245,983
Royalties	$ 556,387	$ 890,694	$ 2,259,085	$ 3,496,703	$ 4,383,313	$ 4,953,350
Coal in Tons						
Volume	31,145,737	606,046	873,681	1,454,570	1,732,054	1,882,878
Market Value	$ 75,847,527	$ (7,582,586)	$ 6,480,472	$ (1,330,321)	$ 19,838,759	$ 28,713,890
Royalties	$ 3,843,637	$ (352,095)	$ 278,333	$ 1,085,399	$ 1,686,054	$ 1,894,923
Other Products						
Market Value	$ 5,351,997	$ 4,027,277	$ 10,564,574	$ 13,594,429	$ 7,117,190	$ 11,075,341
Royalties	$ 481,593	$ 7,315	$ 411,554	$ 565,655	$ 294,070	$ 1,370,404
Total Royalties						
All Minerals	**$ 37,550,740**	**$ 38,837,651**	**$ 67,463,080**	**$ 59,306,584**	**$ 60,106,284**	**$ 55,952,686**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						New Mexico
						Oil in Barrels
22,590,428	23,104,610	21,840,599	21,093,314	21,161,868	1,195,007,913	Volume
$ 604,490,924	$ 368,929,611	$ 372,487,190	$ 318,057,953	$ 369,244,206	$ 8,606,295,588	Market Value
$ 72,181,527	$ 46,209,491	$ 45,872,467	$ 39,811,665	$ 45,849,368	$ 1,054,221,577	Royalties
						Gas in Mcf
496,692,165	374,440,453	422,912,834	408,854,742	414,736,695	18,021,801,605	Volume
$1,344,175,671	$ 782,954,115	$ 695,041,094	$ 716,459,283	$ 663,784,280	$15,172,631,343	Market Value
$ 167,397,414	$ 97,696,290	$ 85,839,782	$ 88,855,918	$ 79,514,738	$ 1,887,952,252	Royalties
						Coal in Tons
7,721,749	4,253,749	3,261,040	3,372,358	6,207,133	70,760,130	Volume
$ 162,555,721	$ 101,069,049	$ 83,322,695	$ 85,091,413	$ 153,466,999	$ 1,144,031,883	Market Value
$ 23,177,307	$ 13,475,148	$ 10,595,326	$ 10,999,760	$ 18,992,458	$ 111,128,875	Royalties
						Other Products
$ 192,686,624	$ 136,243,028	$ 170,638,756	$ 240,206,551	$ 266,832,374	$ 5,360,910,537	Market Value
$ 10,274,597	$ 7,633,223	$ 8,392,685	$ 9,115,771	$ 11,156,301	$ 225,308,838	Royalties
						Total Royalties
$ 273,030,845	**$ 165,014,152**	**$ 150,700,260**	**$ 148,783,114**	**$ 155,512,865**	**$ 3,278,611,542**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						North Carolina
						Other Products
0	0	0	0	0	$ 315,696	Market Value
0	0	0	0	0	$ 19,154	Royalties
						Total Royalties
0	**0**	**0**	**0**	**0**	**$ 19,154**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						North Dakota
						Oil in Barrels
13,545,556	11,413,393	9,872,501	8,291,959	7,039,428	169,771,674	Volume
$ 343,193,855	$ 165,379,797	$ 161,967,416	$ 124,380,261	$ 118,052,302	$ 3,319,786,302	Market Value
$ 40,104,665	$ 19,566,235	$ 18,646,892	$ 14,394,980	$ 14,234,024	$ 398,057,447	Royalties
						Gas in Mcf
14,199,639	16,846,282	13,407,249	13,285,646	10,300,618	155,392,770	Volume
$ 41,416,489	$ 41,115,430	$ 21,009,836	$ 21,351,877	$ 15,080,131	$ 274,445,889	Market Value
$ 4,618,092	$ 4,692,644	$ 2,399,204	$ 2,641,470	$ 1,826,995	$ 32,717,937	Royalties
						Coal in Tons
8,373,290	4,876,793	5,326,944	5,171,486	4,954,981	66,398,460	Volume
$ 85,401,113	$ 55,315,790	$ 47,033,210	$ 42,476,935	$ 41,603,674	$ 393,798,463	Market Value
$ 7,211,535	$ 6,843,255	$ 4,721,524	$ 4,905,510	$ 3,646,461	$ 35,764,536	Royalties
						Other Products
$ 10,653,270	$ 5,008,842	$ 6,202,058	$ 5,335,249	$ 5,110,822	$ 84,041,049	Market Value
$ 1,325,880	$ 561,197	$ 773,828	$ 516,844	$ 410,473	$ 6,718,813	Royalties
						Total Royalties
$ 53,260,172	**$ 31,663,331**	**$ 26,541,448**	**$ 22,458,804**	**$ 20,117,953**	**$ 473,258,733**	**All Minerals**

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Table 10.–Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Ohio						
Oil in Barrels						
Volume	796,680	4,679	1,648	1,700	1,920	2,377
Market Value $	2,286,555 $	113,028 $	57,187 $	51,000 $	53,940 $	65,837
Royalties $	353,285 $	14,121 $	7,759 $	6,375 $	6,732 $	8,229
Gas in Mcf						
Volume	4,477,291	78,557	50,601	46,600	81,500	462,692
Market Value $	1,374,978 $	67,428 $	46,320 $	49,400 $	89,700 $	121,268
Royalties $	154,050 $	8,426 $	5,790 $	6,170 $	8,973 $	14,316
Coal in Tons						
Volume	489,461	0	0	0	0	0
Market Value $	2,066,465	0	0	0	0	0
Royalties $	89,459	0	0	0	0	0
Total Royalties						
All Minerals $	**596,794 $**	**22,547 $**	**13,549 $**	**12,545 $**	**15,705 $**	**22,545**

	1920-79	1980	1981	1982	1983	1984
Oklahoma						
Oil in Barrels						
Volume	14,693,210	192,874	309,900	387,404	427,200	277,626
Market Value $	45,128,492 $	5,070,780 $	6,067,497 $	8,225,621 $	12,602,400 $	7,603,819
Royalties $	5,152,916 $	584,136 $	731,778 $	995,279 $	1,575,300 $	892,079
Gas in Mcf						
Volume	228,938,693	15,412,213	12,496,628	15,949,465	22,611,000	14,578,945
Market Value $	85,779,626 $	26,520,082 $	25,878,899 $	40,117,981 $	66,165,600 $	43,152,009
Royalties $	10,601,349 $	3,100,608 $	3,122,229 $	5,047,144 $	8,270,700 $	5,394,012
Coal in Tons						
Volume	8,285,042	258,818	257,545	243,352	72,293	25,112
Market Value $	105,480,362 $	11,802,057 $	11,563,025 $	9,453,784 $	2,712,818 $	897,256
Royalties $	2,733,128 $	821,286 $	1,129,504 $	1,000,283 $	459,638 $	112,157
Other Products						
Market Value $	32,814,813 $	230,113 $	181,015 $	473,042 $	690,600 $	1,355,699
Royalties $	308,544 $	18,990 $	23,163 $	59,429 $	86,300 $	60,867
Total Royalties						
All Minerals $	**18,795,937 $**	**4,525,020 $**	**5,006,674 $**	**7,102,135 $**	**10,391,938 $**	**6,459,115**

	1920-79	1980	1981	1982	1983	1984
Oregon						
Coal in Tons						
Volume	20,603	0	0	0	0	0
Market Value $	374,084	0	0	0	0	0
Royalties $	24,147	0	0	0	0	0
Other Products						
Market Value $	40	0	0	0	0	0
Royalties $	5	0	0	0	0	0
Total Royalties						
All Minerals $	**24,152**	**0**	**0**	**0**	**0**	**0**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Ohio
						Oil in Barrels
6,297	10,721	9,918	20,680	32,248	888,868	Volume
$ 161,611	$ 235,334	$ 169,618	$ 325,706	$ 558,322	$ 4,078,138	Market Value
$ 19,146	$ 25,739	$ 21,202	$ 40,788	$ 69,238	$ 572,614	Royalties
						Gas in Mcf
203,270	200,943	76,476	1,279,791	(860,775)	6,096,946	Volume
$ 86,772	$ 67,385	$ 152,953	$ 1,577,520	$ (688,147)	$ 2,945,577	Market Value
$ 10,130	$ 7,055	$ 19,119	$ 197,190	$ (86,097)	$ 345,122	Royalties
						Coal in Tons
0	0	0	0	0	489,461	Volume
0	0	0	0	0	$ 2,066,465	Market Value
0	0	0	0	0	$ 89,459	Royalties
						Total Royalties
$ 29,276	**$ 32,794**	**$ 40,321**	**$ 237,978**	**$ (16,859)**	**$ 1,007,195**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Oklahoma
						Oil in Barrels
315,895	217,869	214,437	237,789	289,750	17,563,954	Volume
$ 8,424,705	$ 3,611,615	$ 3,708,114	$ 3,770,221	$ 5,058,420	$ 109,271,684	Market Value
$ 1,048,228	$ 428,522	$ 463,781	$ 471,278	$ 646,934	$ 12,990,231	Royalties
						Gas in Mcf
19,618,008	17,085,700	16,301,800	17,623,853	17,621,312	398,237,617	Volume
$ 51,309,783	$ 32,150,645	$ 23,764,593	$ 25,323,059	$ 30,543,013	$ 450,705,290	Market Value
$ 6,308,460	$ 3,469,579	$ 2,952,811	$ 3,156,281	$ 3,831,329	$ 55,254,502	Royalties
						Coal in Tons
44,209	31,644	0	80,783	102,296	9,401,094	Volume
$ 1,007,511	$ 904,136	0	$ 2,959,144	$ 3,606,776	$ 150,386,869	Market Value
$ 107,545	$ 20,583	0	$ 69,285	$ 109,980	$ 6,363,389	Royalties
						Other Products
$ 774,575	$ 407,114	$ 199,210	$ 525,310	$ 639,245	$ 38,290,736	Market Value
$ 52,904	$ 30,475	$ 26,769	$ 39,433	$ 45,509	$ 752,383	Royalties
						Total Royalties
$ 7,517,137	**$ 3,949,159**	**$ 3,443,361**	**$ 3,736,277**	**$ 4,633,752**	**$ 75,560,505**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Oregon
						Coal in Tons
0	0	0	0	0	20,603	Volume
0	0	0	0	0	$ 374,084	Market Value
0	0	0	0	0	$ 24,147	Royalties
						Other Products
0	0	0	0	0	$ 40	Market Value
0	0	0	0	0	$ 5	Royalties
						Total Royalties
0	**0**	**0**	**0**	**0**	**$ 24,152**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Pennsylvania						
Oil in Barrels						
Volume	989	0	0	0	0	0
Market Value $	4,041	0	0	0	0	0
Royalties $	491	0	0	0	0	0
Gas in Mcf						
Volume	2,794,991	0	0	0	0	0
Market Value $	952,753	0	0	0	0	0
Royalties $	95,385	0	0	0	0	0
Total Royalties						
All Minerals $	**95,876**	**0**	**0**	**0**	**0**	**0**

	1920-79	1980	1981	1982	1983	1984
South Carolina						
Other Products						
Market Value $	118,542	0	0	0	0	0
Royalties $	5,927	0	0	0	0	0
Total Royalties						
All Minerals $	**5,927**	**0**	**0**	**0**	**0**	**0**

	1920-79	1980	1981	1982	1983	1984
South Dakota						
Oil in Barrels						
Volume	716,840	128,768	227,911	364,074	373,950	350,548
Market Value $	5,412,393 $	3,394,556 $	7,045,382 $	11,271,958 $	10,729,830 $	9,794,808
Royalties $	676,552 $	424,319 $	880,673 $	1,408,995 $	1,341,275 $	1,224,334
Gas in Mcf						
Volume	152,019	436,131	(18,599)	287,980	346,400	177,367
Market Value $	304,515 $	981,656 $	16,523 $	748,723 $	1,115,835 $	579,999
Royalties $	38,064 $	122,707 $	2,065 $	93,590 $	109,478 $	72,499
Coal in Tons						
Volume	41,435	0	0	0	0	0
Market Value $	69,381	0	0	0	0	0
Royalties $	7,119	0	0	0	0	0
Other Products						
Market Value $	20,561	0	0	0	0	0
Royalties $	2,571	0	0	0	0	0
Total Royalties						
All Minerals $	**724,306 $**	**547,026 $**	**882,738 $**	**1,502,585 $**	**1,450,753 $**	**1,296,833**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Pennsylvania
						Oil in Barrels
0	0	2,876	4,654	3,289	11,808	Volume
0	0	$ 52,310	$ 67,536	$ 59,889	$ 183,776	Market Value
0	0	$ 6,539	$ 8,375	$ 7,487	$ 22,892	Royalties
						Gas in Mcf
0	0	9,260	73,898	182,865	3,061,014	Volume
0	0	$ 7,686	$ 39,905	$ 287,781	$ 1,288,125	Market Value
0	0	$ 961	$ 4,988	$ 35,866	$ 137,200	Royalties
						Total Royalties
0	**0**	**$ 7,500**	**$ 13,363**	**$ 43,353**	**$ 160,092**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						South Carolina
						Other Products
0	0	0	0	0	$ 118,542	Market Value
0	0	0	0	0	$ 5,927	Royalties
						Total Royalties
0	**0**	**0**	**0**	**0**	**$ 5,927**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						South Dakota
						Oil in Barrels
517,580	553,152	509,500	422,565	401,523	4,566,411	Volume
$ 13,125,718	$ 7,970,367	$ 8,253,114	$ 6,262,965	$ 6,525,504	$ 89,786,595	Market Value
$ 1,537,620	$ 887,255	$ 1,031,639	$ 772,725	$ 804,946	$ 10,990,333	Royalties
						Gas in Mcf
668,536	357,750	366,255	279,611	231,153	3,284,603	Volume
$ 2,508,934	$ 511,120	$ 455,215	$ 421,667	$ 300,500	$ 7,944,687	Market Value
$ 221,214	$ 57,179	$ 53,361	$ 51,305	$ 36,961	$ 858,423	Royalties
						Coal in Tons
0	0	0	0	0	41,435	Volume
0	0	0	0	0	$ 69,381	Market Value
0	0	0	0	0	$ 7,119	Royalties
						Other Products
$ 13,171	$ 21,820	0	$ 37,387	$ 23,115	$ 116,054	Market Value
$ 1,647	$ 2,727	0	$ 4,673	$ 2,889	$ 14,507	Royalties
						Total Royalties
$ 1,760,481	**$ 947,161**	**$ 1,085,000**	**$ 828,703**	**$ 844,796**	**$ 11,870,382**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Tennessee						
Other Products						
Market Value	$ 81,340	0	0	0	0	0
Royalties	$ 4,452	0	0	0	0	0
Total Royalties All Minerals	$ **4,452**	**0**	**0**	**0**	**0**	**0**

	1920-79	1980	1981	1982	1983	1984
Texas						
Oil in Barrels						
Volume	6,586,304	198,682	178,910	146,384	2,793	170,528
Market Value	$ 24,965,173	$ 3,255,926	$ 6,659,086	$ 4,803,470	$ 87,252	$ 4,840,793
Royalties	$ 3,515,388	$ 373,422	$ 672,964	$ 579,969	$ 4,975	$ 627,111
Gas in Mcf						
Volume	72,950,727	1,343,723	1,022,162	1,350,349	455,470	1,417,654
Market Value	$ 17,372,348	$ 2,261,090	$ 3,415,864	$ 4,465,045	$ 2,892,848	$ 5,597,976
Royalties	$ 2,147,239	$ 158,422	$ 185,353	$ 358,905	$ 68,353	$ 699,747
Other Products						
Market Value	$ 9,819,897	$ 72,984	$ 83,695	$ 71,670	$ 24,000	$ 210,154
Royalties	$ 519,452	$ 16,719	$ 11,714	$ 9,900	$ 3,000	$ 26,481
Total Royalties All Minerals	$ **6,182,079**	$ **548,563**	$ **870,031**	$ **948,774**	$ **76,328**	$ **1,353,339**

	1920-79	1980	1981	1982	1983	1984
Utah						
Oil in Barrels						
Volume	197,526,461	5,357,524	5,741,831	6,442,595	5,178,825	7,060,663
Market Value	$ 679,710,917	$ 79,493,432	$ 179,029,658	$ 159,274,157	$ 134,806,991	$ 181,605,459
Royalties	$ 84,735,519	$ 10,055,471	$ 22,464,242	$ 20,024,607	$ 16,849,998	$ 22,810,553
Gas in Mcf						
Volume	589,224,963	27,250,585	29,823,600	23,559,496	20,707,105	41,273,136
Market Value	$ 129,733,276	$ 48,905,382	$ 62,295,509	$ 69,576,946	$ 64,697,810	$ 137,945,478
Royalties	$ 15,894,063	$ 6,071,332	$ 7,761,048	$ 8,677,963	$ 8,078,023	$ 17,329,898
Coal in Tons						
Volume	126,148,329	8,663,416	8,718,640	10,925,415	6,725,347	8,326,593
Market Value	$ 954,050,710	$ 198,161,726	$ 216,092,766	$ 299,636,435	$ 167,363,268	$ 204,084,794
Royalties	$ 17,332,523	$ 4,526,078	$ 5,063,613	$ 8,976,648	$ 4,989,989	$ 7,588,067
Other Products						
Market Value	$ 52,376,746	$ 10,555,456	$ 15,156,946	$ 11,865,058	$ 2,602,762	$ 21,126,798
Royalties	$ 2,487,468	$ 451,720	$ 684,933	$ 574,244	$ 199,969	$ 2,522,023
Total Royalties All Minerals	$ **120,449,573**	$ **21,104,601**	$ **35,973,836**	$ **38,253,462**	$ **30,117,979**	$ **50,250,541**

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Table 10.–Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Tennessee
						Other Products
0	0	0	0	0	$ 81,340	Market Value
0	0	0	0	0	$ 4,452	Royalties
						Total Royalties
0	**0**	**0**	**0**	**0**	**$ 4,452**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Texas
						Oil in Barrels
327,658	336,261	378,686	283,096	220,383	8,829,685	Volume
$ 8,412,278	$ 5,353,592	$ 7,642,595	$ 4,470,570	$ 3,905,698	$ 74,396,433	Market Value
$ 1,160,764	$ 741,734	$ 803,488	$ 571,495	$ 477,246	$ 9,528,556	Royalties
						Gas in Mcf
3,184,307	2,937,725	3,970,109	1,722,372	1,275,866	91,630,464	Volume
$ 9,153,154	$ 5,032,775	$ 6,346,829	$ 2,829,021	$ 2,144,469	$ 61,511,419	Market Value
$ 917,626	$ 602,246	$ 785,083	$ 346,882	$ 259,211	$ 6,529,067	Royalties
						Other Products
$ 432,584	$ 496,002	$ 72,762	$ 105,935	$ 147,584	$ 11,537,267	Market Value
$ 49,033	$ 70,953	$ 8,215	$ 13,655	$ 13,753	$ 742,875	Royalties
						Total Royalties
$ 2,127,423	**$ 1,414,933**	**$ 1,596,786**	**$ 932,032**	**$ 750,210**	**$ 16,800,498**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Utah
						Oil in Barrels
6,973,348	6,512,093	6,516,132	5,869,096	5,795,761	258,974,329	Volume
$ 163,415,228	$ 86,278,807	$ 105,001,154	$ 79,881,759	$ 101,328,124	$ 1,949,825,686	Market Value
$ 20,409,152	$ 10,767,847	$ 13,013,191	$ 9,898,161	$ 12,561,754	$ 243,590,495	Royalties
						Gas in Mcf
34,859,573	32,554,777	28,449,356	28,646,059	34,513,187	890,861,837	Volume
$ 105,988,954	$ 77,507,744	$ 51,518,668	$ 44,588,839	$ 53,765,290	$ 846,523,896	Market Value
$ 12,464,130	$ 9,983,151	$ 6,362,239	$ 5,647,502	$ 6,730,823	$ 105,000,172	Royalties
						Coal in Tons
11,185,062	10,631,069	13,707,055	14,294,720	16,528,554	235,854,200	Volume
$ 287,549,077	$ 302,463,575	$ 379,960,984	$ 395,922,539	$ 404,340,212	$ 3,809,626,086	Market Value
$ 15,265,329	$ 16,321,635	$ 22,262,416	$ 16,628,521	$ 28,119,418	$ 147,074,237	Royalties
						Other Products
$ 12,062,855	$ 10,821,749	$ 9,555,372	$ 22,331,466	$ 13,070,515	$ 181,525,723	Market Value
$ 1,365,958	$ 1,045,847	$ 944,250	$ 2,310,862	$ 1,084,602	$ 13,671,876	Royalties
						Total Royalties
$ 49,504,569	**$ 38,118,480**	**$ 42,582,096**	**$ 34,485,046**	**$ 48,496,597**	**$ 509,336,780**	**All Minerals**

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Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Virginia						
Coal in Tons						
Volume	798	0	0	0	0	33,786
Market Value $	4,589	0	0	0	0 $	1,248,476
Royalties $	119	0	0	0	0 $	99,525
Other Products						
Market Value $	6,418,607 $	14,515 $	54,553 $	778,614 $	364,515	0
Royalties $	226,868 $	726 $	1,503 $	19,155 $	9,113	0
Total Royalties All Minerals $	**226,987 $**	**726 $**	**1,503 $**	**19,155 $**	**9,113 $**	**99,525**

	1920-79	1980	1981	1982	1983	1984
Washington						
Coal in Tons						
Volume	1,766,231	0	17,657	86,711	191,952	836,481
Market Value $	6,800,914	0 $	322,900 $	1,257,298 $	3,839,041 $	17,204,346
Royalties $	300,156	0 $	3,531 $	17,342 $	38,390 $	167,295
Total Royalties All Minerals $	**300,156**	**0 $**	**3,531 $**	**17,342 $**	**38,390 $**	**167,295**

	1920-79	1980	1981	1982	1983	1984
West Virginia						
Oil in Barrels						
Volume	0	0	0	0	0	0
Market Value	0	0	0	0	0	0
Royalties	0	0	0	0	0	0
Gas in Mcf						
Volume	33,937,022	2,533	555,729	575,000	520,000	0
Market Value $	9,122,716 $	2,085 $	1,209,700 $	1,334,000 $	1,232,400	0
Royalties $	1,523,515 $	264 $	151,211 $	166,750 $	154,000	0
Total Royalties All Minerals $	**1,523,515 $**	**264 $**	**151,211 $**	**166,750 $**	**154,000**	**0**

Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Virginia
						Coal in Tons
14,112	0	0	0	0	48,696	Volume
$ 491,891	0	0	0	0	$ 1,744,956	Market Value
$ 39,278	$ (23,089)	0	0	0	$ 115,833	Royalties
						Other Products
$ 54,592	0	$ 346,134	$ 213,230	$ 53,160	$ 8,297,920	Market Value
$ 1,458	0	$ 12,743	$ 10,662	$ 2,658	$ 284,886	Royalties
						Total Royalties
$ 40,736	**$ (23,089)**	**$ 12,743**	**$ 10,662**	**$ 2,658**	**$ 400,719**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Washington
						Coal in Tons
300,850	558,856	528,025	507,916	662,264	5,456,943	Volume
$ 6,007,974	$ 14,340,245	$ 14,853,343	$ 13,134,627	$ 16,536,707	$ 94,297,395	Market Value
$ 64,405	$ 111,771	$ 105,605	$ 111,788	$ 249,132	$ 1,169,415	Royalties
						Total Royalties
$ 64,405	**$ 111,771**	**$ 105,605**	**$ 111,788**	**$ 249,132**	**$ 1,169,415**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						West Virginia
						Oil in Barrels
0	0	0	0	231	231	Volume
0	0	0	0	$ 3,691	$ 3,691	Market Value
0	0	0	0	$ 461	$ 461	Royalties
						Gas in Mcf
796,030	1,349,894	2,114,347	1,984,178	1,493,520	43,328,253	Volume
$ 1,884,550	$ 2,555,946	$ 2,755,023	$ 2,550,636	$ 2,265,896	$ 24,912,952	Market Value
$ 119,205	$ 137,271	$ 341,749	$ 317,435	$ 281,267	$ 3,192,667	Royalties
						Total Royalties
$ 119,205	**$ 137,271**	**$ 341,749**	**$ 317,435**	**$ 281,728**	**$ 3,193,128**	**All Minerals**

Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

	1920-79	1980	1981	1982	1983	1984
Wyoming						
Oil in Barrels						
Volume	2,641,799,177	70,575,096	70,199,746	67,742,499	70,696,290	70,813,337
Market Value	$ 9,063,283,232	$1,541,407,807	$2,259,737,039	$1,978,462,922	$1,945,171,228	$1,945,150,336
Royalties	$ 1,166,043,688	$ 191,660,745	$ 276,608,481	$ 240,821,908	$ 243,146,403	$ 244,129,907
Gas in Mcf						
Volume	4,182,262,524	203,470,447	198,187,169	221,972,002	223,943,362	312,088,639
Market Value	$ 1,226,263,333	$ 376,737,461	$ 492,311,376	$ 670,938,161	$ 810,987,882	$ 900,433,243
Royalties	$ 145,145,743	$ 46,421,603	$ 60,877,028	$ 82,863,457	$ 100,510,848	$ 120,544,028
Coal in Tons						
Volume	214,487,029	33,433,532	59,576,163	63,612,335	63,536,141	69,610,380
Market Value	$ 1,225,117,005	$ 297,092,692	$ 580,670,187	$ 788,411,390	$ 738,663,749	$ 509,436,577
Royalties	$ 38,158,304	$ 8,700,686	$ 17,289,702	$ 21,331,355	$ 21,024,109	$ 23,449,891
Other Products						
Market Value	$ 1,259,843,977	$ 163,477,094	$ 162,631,022	$ 226,432,588	$ 266,008,167	$ 191,331,536
Royalties	$ 57,192,742	$ 7,659,230	$ 8,853,391	$ 6,381,288	$ 19,809,762	$ 13,018,753
Total Royalties						
All Minerals	**$ 1,406,540,477**	**$ 254,442,264**	**$ 363,628,602**	**$ 351,398,008**	**$ 384,491,122**	**$ 401,142,579**

	1920-79	1980	1981	1982	1983	1984
Onshore Federal Totals						
Oil in Barrels						
Volume	6,241,172,228	149,699,287	155,576,698	149,612,769	151,456,755	152,339,422
Market Value	$20,865,847,489	$3,275,608,547	$4,891,868,825	$4,273,035,966	$4,118,421,266	$4,086,190,765
Royalties	$ 2,676,189,244	$ 413,403,243	$ 604,782,996	$ 524,530,180	$ 523,898,702	$ 519,046,615
Gas in Mcf						
Volume	23,543,067,163	1,030,801,880	1,083,063,410	1,161,244,656	971,188,219	1,112,769,625
Market Value	$ 6,633,932,502	$1,721,751,337	$2,186,873,097	$2,781,751,999	$2,777,280,960	$2,907,402,136
Royalties	$ 830,079,074	$ 215,282,024	$ 274,731,205	$ 349,439,615	$ 346,762,100	$ 371,155,164
Coal in Tons						
Volume	568,290,510	69,092,512	116,499,589	101,092,851	98,686,155	115,817,738
Market Value	$ 3,668,945,363	$ 854,899,092	$1,470,169,930	$1,520,424,951	$1,432,177,445	$1,404,670,760
Royalties	$ 95,378,508	$ 32,255,361	$ 43,009,278	$ 61,898,704	$ 52,330,292	$ 69,359,702
Other Products						
Market Value	$ 7,415,133,295	$ 909,113,625	$ 874,206,665	$ 888,408,452	$ 715,175,903	$ 847,824,435
Royalties	$ 330,185,164	$ 44,247,789	$ 42,162,901	$ 36,613,331	$ 39,593,904	$ 57,133,851
Total Royalties						
All Minerals	**$ 3,931,831,990**	**$ 705,188,417**	**$ 964,686,380**	**$ 972,481,830**	**$ 962,584,998**	**$1,016,695,332**

Table 10.--Summary of volume, market value, and royalties by State and commodity from Federal onshore mineral leases, 1920-89 (cont.)

1985	1986	1987	1988	1989	1920-89	
						Wyoming
						Oil in Barrels
80,779,449	75,310,537	71,326,893	66,120,236	63,815,807	3,349,179,067	Volume
$1,953,139,676	$1,069,870,090	$1,162,680,852	$ 909,032,299	$1,032,350,240	$24,860,285,721	Market Value
$ 231,917,178	$ 124,021,213	$ 136,076,684	$ 108,357,983	$ 122,177,177	$ 3,084,961,367	Royalties
						Gas in Mcf
257,094,699	235,887,124	267,618,588	312,672,292	308,655,331	6,723,852,177	Volume
$ 779,883,799	$ 550,364,657	$ 476,533,041	$ 447,073,013	$ 472,037,703	$ 7,203,563,669	Market Value
$ 95,900,785	$ 71,874,321	$ 59,067,090	$ 56,927,484	$ 60,735,466	$ 900,867,853	Royalties
						Coal in Tons
100,621,788	111,407,678	120,404,308	145,925,209	146,264,126	1,128,878,689	Volume
$1,243,721,251	$1,505,693,411	$1,638,362,980	$1,403,440,463	$1,586,288,562	$11,516,898,267	Market Value
$ 27,705,941	$ 28,486,778	$ 60,894,526	$ 91,858,561	$ 100,112,259	$ 439,012,112	Royalties
						Other Products
$ 212,532,821	$ 210,588,289	$ 143,112,419	$ 206,213,443	$ 257,534,441	$ 3,299,705,797	Market Value
$ 16,018,171	$ 13,029,094	$ 8,781,833	$ 12,098,334	$ 13,766,649	$ 176,609,247	Royalties
						Total Royalties
$ 371,542,075	**$ 237,411,406**	**$ 264,820,133**	**$ 269,242,362**	**$ 296,791,551**	**$ 4,601,450,579**	**All Minerals**

1985	1986	1987	1988	1989	1920-89	
						Onshore Federal Totals
						Oil in Barrels
169,968,698	157,297,487	149,977,454	138,989,604	132,705,344	7,748,795,746	Volume
$4,117,255,913	$2,227,484,741	$2,389,418,077	$1,887,117,906	$2,136,264,916	$54,268,514,411	Market Value
$ 492,367,908	$ 268,689,563	$ 289,069,747	$ 230,896,902	$ 263,056,653	$ 6,805,931,753	Royalties
						Gas in Mcf
992,989,861	821,841,109	887,679,926	901,859,470	896,740,980	33,403,246,299	Volume
$2,661,567,110	$1,764,993,100	$1,475,653,725	$1,445,305,049	$1,422,757,388	$27,779,268,403	Market Value
$ 328,657,320	$ 224,601,025	$ 183,941,568	$ 182,044,265	$ 176,414,932	$ 3,483,108,292	Royalties
						Coal in Tons
159,227,236	166,738,139	171,162,306	199,209,780	209,287,543	1,975,104,359	Volume
$2,330,911,821	$2,485,867,868	$2,669,680,063	$2,429,997,791	$2,700,659,808	$22,968,404,892	Market Value
$ 103,473,037	$ 108,420,624	$ 152,470,369	$ 172,795,745	$ 194,541,835	$ 1,085,933,455	Royalties
						Other Products
$ 938,429,282	$ 844,786,663	$ 840,880,757	$1,087,472,411	$1,274,931,720	$16,636,363,208	Market Value
$ 68,455,626	$ 62,759,211	$ 56,929,325	$ 63,798,020	$ 69,257,958	$ 871,137,080	Royalties
						Total Royalties
$ 992,953,891	**$ 664,470,423**	**$ 682,411,009**	**$ 649,534,932**	**$ 703,271,378**	**$12,246,110,580**	**All Minerals**

Table 20.--1989 volume, market value, and royalties by commodity and State from Federal onshore mineral leases

	Production Volume	Market Value	Royalties Received
Amethyst			
Georgia..........................	5	$ 192	$ 10
Bentonite			
Wyoming..........................	26,392	$ 527,830	$ 29,031
Carbon Dioxide			
Colorado.........................	192,972,785	$ 151,948,209	$ 10,017,731
New Mexico.......................	8,579,550	4,441,654	550,589
Wyoming..........................	11,370,405	7,390,763	73,908
Subtotal.....................	212,922,740	$ 163,780,626	$ 10,642,228
Coal			
Alabama..........................	147,473	$ 5,649,348	$ 395,580
Colorado.........................	10,583,253	215,324,252	16,103,220
Kentucky.........................	142,121	3,262,187	268,962
Montana..........................	23,695,342	270,581,091	26,544,365
New Mexico.......................	6,207,133	153,466,999	18,992,458
North Dakota.....................	4,954,981	41,603,674	3,646,461
Oklahoma.........................	102,296	3,606,776	109,980
Utah.............................	16,528,554	404,340,212	28,119,418
Washington.......................	662,264	16,536,707	249,132
Wyoming..........................	146,264,126	1,586,288,562	100,112,259
Subtotal.....................	209,287,543	$2,700,659,808	$194,541,835
Copper			
Missouri.........................	72,732	$ 47,284,032	$ 1,665,965
Garnet Concession			
Idaho............................	586	$ 2,930	$ 205
Garnet Sands			
Idaho............................	130	$ 18,200	$ 654

Table 20.—1989 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
Gas			
Alabama	116,542	$ 215,674	$ 26,047
Alaska	4,356,306	3,877,112	550,550
Arkansas	5,419,409	12,738,484	1,664,669
California	6,502,489	12,838,485	2,073,986
Colorado	51,832,494	80,821,748	9,640,635
Kansas	11,211,249	16,820,878	2,032,794
Kentucky	257,069	656,800	81,596
Louisiana	14,207,373	25,261,143	3,488,318
Maryland	8,037	4,903	613
Michigan	3,461,282	8,342,392	1,037,312
Mississippi	795,980	1,547,185	192,320
Montana	10,422,978	20,111,668	2,459,533
New Mexico	414,736,695	663,784,280	79,514,738
North Dakota	10,300,618	15,080,131	1,826,995
Ohio	(860,775)	(688,147)	(86,097)
Oklahoma	17,621,312	30,543,013	3,831,329
Pennsylvania	182,865	287,781	35,866
South Dakota	231,153	300,500	36,961
Texas	1,275,866	2,144,469	259,211
Utah	34,513,187	53,765,290	6,730,823
West Virginia	1,493,520	2,265,896	281,267
Wyoming	308,655,331	472,037,703	60,735,466
Subtotal	896,740,980	$1,422,757,388	$176,414,932
Gas Lost			
California	25,817	$ 57,603	$ 7,200
Colorado	3,904	10,033	1,254
North Dakota	505,579	657,252	82,157
Wyoming	22,303	78,285	9,707
Subtotal	557,603	$ 803,173	$ 100,318

Table 20.--1989 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
Gas Plant Products			
Alabama	2,941	$ 786	$ 314
Alaska	11,851	4,479	421
California	13,467,591	4,573,957	261,260
Colorado	16,732,284	3,526,943	191,999
Kansas	2,187,778	571,053	59,566
Louisiana	10,772,719	2,884,723	278,419
Michigan	1,978,112	425,468	44,809
Montana	5,048,492	1,288,979	103,580
New Mexico	332,012,693	66,157,260	6,655,760
North Dakota	18,469,271	3,913,149	293,041
Oklahoma	2,929,077	639,245	45,509
South Dakota	165,339	23,115	2,889
Texas	582,842	147,584	13,753
Utah	28,868,226	6,724,870	602,674
Wyoming	208,734,731	44,351,076	3,626,584
Subtotal	641,963,947	$ 135,232,687	$ 12,180,578
Geothermal			
California	10,839,394	$ 93,435,572	$ 11,311,403
Nevada	1,673,782	14,428,004	1,457,228
Utah	352,420	3,037,863	309,862
Subtotal	12,865,596	$ 110,901,439	$ 13,078,493
Gilsonite			
Utah	5,316	$ 766,920	$ 95,867
Hot Water			
California	1,519,347	$ 14,190,698	$ 1,417,202
Nevada	120,768	1,127,976	112,798
New Mexico	2,511	23,507	2,938
Subtotal	1,642,626	$ 15,342,181	$ 1,532,938
Iron Ore			
Minnesota	139,802	$ 3,914,456	$ 134,539
Langbeinite			
New Mexico	506,889	$ 33,640,096	$ 672,802
Lead			
Missouri	306,909	$ 155,744,356	$ 4,537,409

Table 20.--1989 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
Leonardite			
North Dakota......................	60	$ 394	$ 49
Limestone			
Virginia..........................	14,122	$ 53,160	$ 2,658
Magnesium			
Utah..............................	88,493	$ 1,010,864	$ 30,326
Nitrogen			
Wyoming...........................	31,019	$ 112,909	$ 13,358
Oil			
Alabama...........................	18,671	$ 323,274	$ 71,091
Alaska............................	2,854	47,972	6,001
California........................	17,721,457	225,160,396	28,644,835
Colorado..........................	7,588,626	143,125,594	21,947,984
Florida...........................	35,708	642,714	80,938
Illinois..........................	6,523	105,622	13,367
Kansas............................	280,543	5,011,081	630,839
Kentucky..........................	3,944	68,842	10,177
Louisiana.........................	861,517	15,452,309	1,770,393
Michigan..........................	129,963	2,234,068	284,442
Mississippi.......................	611,422	10,771,938	1,335,275
Montana...........................	3,441,239	55,703,432	6,362,571
Nebraska..........................	97,335	1,718,841	218,550
Nevada............................	3,145,254	38,812,437	4,851,555
New Mexico........................	21,161,868	369,244,206	45,849,368
North Dakota......................	7,039,428	118,052,302	14,234,024
Ohio..............................	32,248	558,322	69,238
Oklahoma..........................	289,750	5,058,420	646,934
Pennsylvania......................	3,289	59,889	7,487
South Dakota......................	401,523	6,525,504	804,946
Texas.............................	220,383	3,905,698	477,246
Utah..............................	5,795,761	101,328,124	12,561,754
West Virginia.....................	231	3,691	461
Wyoming...........................	63,815,807	1,032,350,240	122,177,177
Subtotal........................	132,705,344	$2,136,264,916	$263,056,653
Oil Lost			
New Mexico........................	26	$ 443	$ 55

Table 20.--1989 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
Phosphate			
Idaho	4,242,669	$ 57,636,076	$ 2,957,976
Montana	117,124	1,864,475	93,229
Subtotal	4,359,793	$ 59,500,551	$ 3,051,205
Potash			
California	98,780	$ 7,980,611	$ 396,806
New Mexico	1,953,408	161,725,145	3,234,547
Utah	18,688	1,502,627	45,199
Subtotal	2,070,876	$ 171,208,383	$ 3,676,552
Purge Liquor			
Wyoming	32,659	$ 663,538	$ 33,177
Quartz Crystals			
Arkansas	9,731	$ 81,140	$ 4,053
Sand and Gravel			
Nevada	3,472,573	$ 9,910,173	$ 465,119
Sodium			
California	1,089,745	$ 114,426,404	$ 5,682,599
New Mexico	709,378	435,129	21,756
Utah	5,445	27,371	674
Wyoming	2,560,155	191,073,422	9,515,605
Subtotal	4,364,723	$ 305,962,326	$ 15,220,634
Sulfur			
Alabama	140	$ 12,611	$ 1,235
Montana	3,181	128,061	7,580
New Mexico	7,183	409,140	17,854
North Dakota	9,275	540,027	35,226
Wyoming	229,359	12,610,144	428,745
Subtotal	249,138	$ 13,699,983	$ 490,640
Trona Ore			
Wyoming	6,262	$ 726,474	$ 36,534
Zinc			
Missouri	55,010	$ 44,042,264	$ 1,562,561
Total		$7,534,613,832	$703,271,378

Table 20.--1988 volume, market value, and royalties by commodity and State from Federal onshore mineral leases

	Production Volume	Market Value	Royalties Received
BENTONITE			
Wyoming	109,855	$ 120,840	$ 15,105
CARBON DIOXIDE			
Colorado	182,148,179	$ 114,424,008	$ 9,284,392
New Mexico	10,196,708	5,656,705	706,531
Subtotal	192,344,887	$ 120,080,713	$ 9,990,923
COAL			
Colorado	8,992,859	$ 183,596,741	$ 12,146,642
Kentucky	238,423	6,023,729	484,153
Montana	20,626,026	297,352,200	35,591,525
New Mexico	3,372,358	85,091,413	10,999,760
North Dakota	5,171,486	42,476,935	4,905,510
Oklahoma	80,783	2,959,144	69,285
Utah	14,294,720	395,922,539	16,628,521
Washington	507,916	13,134,627	111,788
Wyoming	145,925,209	1,403,440,463	91,858,561
Subtotal	199,209,780	$2,429,997,791	$172,795,745
COPPER			
Missouri	68,976	$ 33,623,820	$ 1,423,313
FLUORSPAR			
Illinois	809	$ 134,745	$ 6,064
GARNET SANDS			
Idaho	2,228	$ 2,228	$ 156

Table 20.--1988 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
GAS			
Alabama	124,892	$ 197,627	$ 24,737
Alaska	28,776,378	35,970,473	4,496,309
Arkansas	7,165,772	14,268,539	1,865,054
California	4,174,018	7,556,939	1,656,985
Colorado	38,942,606	63,152,510	7,827,994
Kansas	10,958,785	15,313,237	1,910,998
Kentucky	239,215	679,766	84,971
Louisiana	12,651,360	20,234,725	2,814,206
Maryland	6,391	4,026	503
Michigan	3,009,380	7,266,218	918,799
Mississippi	997,437	1,963,853	243,580
Montana	8,390,794	16,482,316	2,053,674
New Mexico	408,854,742	716,459,283	88,855,918
North Dakota	13,285,646	21,351,877	2,641,470
Ohio	1,279,791	1,577,520	197,190
Oklahoma	17,623,853	25,323,059	3,156,281
Pennsylvania	73,898	39,905	4,988
South Dakota	279,611	421,667	51,305
Texas	1,722,372	2,829,021	346,882
Utah	28,646,059	44,588,839	5,647,502
West Virginia	1,984,178	2,550,636	317,435
Wyoming	312,672,292	447,073,013	56,927,484
Subtotal	901,859,470	$1,445,305,049	$182,044,265
GAS LOST			
California	517,060	$ 1,845,904	$ 230,738
Colorado	5,507	13,272	1,659
New Mexico	128,562	382,411	45,850
Wyoming	486	1,522	190
Subtotal	651,615	$ 2,243,109	$ 278,437

Table 20.--1988 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
GAS PLANT PRODUCTS			
Alabama	2,526	$ 699	$ 279
Alaska	1,496,104	460,133	57,234
California	13,532,780	4,710,099	319,235
Colorado	4,396,813	875,632	60,200
Kansas	906,481	269,096	32,078
Louisiana	10,859,542	3,191,890	390,145
Michigan	1,357,613	260,012	28,928
Montana	3,929,776	1,081,662	92,782
New Mexico	294,084,443	63,281,802	4,907,356
North Dakota	19,528,270	4,863,133	482,798
Oklahoma	2,742,753	525,310	39,433
South Dakota	143,795	37,387	4,673
Texas	584,983	105,935	13,655
Utah	42,543,055	16,951,629	1,949,665
Wyoming	167,734,568	43,391,723	4,173,139
Subtotal	563,843,502	$ 140,006,142	$ 12,551,600
GEOTHERMAL			
California	10,584,073	$ 89,917,898	$ 11,239,445
Nevada	879,256	7,476,949	748,256
Utah	322,944	2,741,604	277,654
Subtotal	11,786,273	$ 100,136,451	$ 12,265,355
GILSONITE			
Utah	314	$ 46,306	$ 5,788
HOT WATER			
California	1,153,539	$ 9,378,270	$ 937,827
Nevada	74,953	607,869	42,861
Subtotal	1,228,492	$ 9,986,139	$ 980,688
IRON ORE			
Minnesota	12,657	$ 354,396	$ 11,579
LANGBEINITE			
New Mexico	649,360	$ 41,680,904	$ 833,618
LEAD			
Illinois	3	$ 115	$ 6
Missouri	298,402	148,595,204	4,355,661
Subtotal	298,405	$ 148,595,319	$ 4,355,667

Table 20.--1988 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
LEONARDITE			
North Dakota	29	$ 200	$ 25
LIMESTONE			
Virginia	43,680	$ 213,230	$ 10,662
MAGNESIUM			
Utah	117,191	$ 1,012,976	$ 30,389
OIL			
Alabama	31,535	$ 484,215	$ 106,374
Alaska	739,102	10,972,761	1,359,683
Arkansas	985	14,690	1,836
California	18,712,811	194,252,318	23,950,409
Colorado	7,919,326	118,782,823	17,397,637
Florida	41,466	652,781	81,597
Illinois	14,539	218,517	27,315
Kansas	334,921	5,139,298	675,791
Kentucky	5,721	86,173	12,693
Louisiana	1,051,275	16,531,624	1,847,756
Michigan	99,248	1,500,129	192,311
Mississippi	586,271	8,787,621	1,089,164
Montana	3,839,065	53,578,775	6,092,168
Nebraska	102,534	1,558,588	195,469
Nevada	3,167,416	28,308,323	3,539,249
New Mexico	21,093,314	318,057,953	39,811,665
North Dakota	8,291,959	124,380,261	14,394,980
Ohio	20,680	325,706	40,788
Oklahoma	237,789	3,770,221	471,278
Pennsylvania	4,654	67,536	8,375
South Dakota	422,565	6,262,965	772,725
Texas	283,096	4,470,570	571,495
Utah	5,869,096	79,881,759	9,898,161
Wyoming	66,120,236	909,032,299	108,357,983
Subtotal	138,989,604	$1,887,117,906	$230,896,902
OIL LOST			
California	398	$ 4,657	$ 450
North Dakota	36	547	68
Subtotal	434	$ 5,204	$ 518

Table 20.--1988 volume, market value, and royalties by commodity and State from Federal onshore mineral leases (cont.)

	Production Volume	Market Value	Royalties Received
PHOSPHATE			
Idaho	5,275,738	$ 45,512,872	$ 3,144,231
Montana	67,901	1,054,960	52,748
Wyoming	78,937	553,347	27,114
Subtotal	5,422,576	$ 47,121,179	$ 3,224,093
POTASH			
California	81,671	$ 7,713,100	$ 385,655
New Mexico	1,643,345	128,360,049	2,567,207
Utah	17,168	1,526,325	45,790
Subtotal	1,742,184	$ 137,599,474	$ 2,998,652
PURGE LIQUOR			
Wyoming	17,506	$ 794,076	$ 39,701
QUARTZ CRYSTALS			
Arkansas	60,868	$ 218,306	$ 11,036
Georgia	39	136	7
Subtotal	60,907	$ 218,442	$ 11,043
SAND AND GRAVEL			
Nevada	3,326,183	$ 7,051,509	$ 394,884
SODIUM			
California	917,829	$ 104,527,882	$ 5,360,684
New Mexico	496,516	406,014	20,229
Utah	30,943	52,626	1,576
Wyoming	2,430,137	161,985,514	8,052,165
Subtotal	3,875,425	$ 266,972,036	$ 13,434,654
SULFUR			
Montana	919	$ 26,818	$ 2,011
New Mexico	6,557	438,667	34,980
North Dakota	9,010	471,368	33,953
Wyoming	(21,863)	(633,579)	(209,081)
Subtotal	(5,377)	$ 303,274	$ (138,137)
ZINC			
Illinois	4	$ 1,454	$ 65
Missouri	61,405	29,168,245	1,073,178
Subtotal	61,409	$ 29,169,699	$ 1,073,243
TOTAL		$6,849,893,157	$649,534,932

FROM SELECTED ONSHORE FEDERAL MINERAL LEASES, 1987

	PRODUCTION VOLUME	MARKET VALUE	ROYALTIES RECEIVED
GAS LOST			
California	(8,328)	$ (15,834)	$ (13,138)
Colorado	10,403	29,424	3,679
New Mexico	990	3,393	424
Wyoming	95,717	356,071	45,209
Subtotal	98,782	$ 373,054	$ 36,174
GAS PLANT PRODUCTS			
Alabama	2,501	$ 657	$ 260
Alaska	2,563,746	868,799	108,515
California	7,209,683	2,379,196	297,400
Colorado	2,502,765	900,585	104,797
Kansas	421,080	85,971	10,747
Louisiana	8,519,326	2,568,431	382,218
Michigan	399,458	91,189	11,399
Montana	4,643,540	1,533,402	178,273
Nebraska	(53,632)	(22,525)	(3,754)
New Mexico	184,113,706	38,561,303	4,822,644
North Dakota	20,638,335	5,926,809	740,851
Oklahoma	872,651	199,210	26,769
Texas	222,469	72,762	8,215
Utah	19,912,750	5,000,297	625,334
Wyoming	121,933,687	23,179,165	2,897,328
Subtotal	373,902,065	$ 81,345,251	$ 10,210,996
GEOTHERMAL			
California	9,859,700	$ 108,862,877	$ 13,607,949
Nevada	193,192	2,666,353	266,636
Utah	188,661	2,603,808	260,382
Subtotal	10,241,553	$ 114,133,038	$ 14,134,967
HOT WATER			
California	134,387	$ 1,854,757	$ 185,476
IRON ORE			
Minnesota	458,745	$ 9,976,173	$ 399,047
LANGBEINITE			
New Mexico	719,455	$ 41,912,268	$ 838,206
LEAD'			
Missouri	252,975	$ 114,564,421	$ 3,353,230

Table 19.

SUMMARY BY COMMODITY AND STATE OF VOLUME, VALUE, AND ROYALTIES

	PRODUCTION VOLUME	MARKET VALUE	ROYALTIES RECEIVED
CARBON DIOXIDE			
Colorado	195,309,125	$ 84,396,444	$ 10,381,269
New Mexico	10,554,050	8,554,996	1,072,500
Wyoming	8,437,707	8,489,727	413,331
Subtotal	214,300,882	$ 101,441,167	$ 11,867,100
COAL			
Colorado	6,922,458	$ 173,920,774	$ 14,780,341
Montana	21,012,476	332,226,077	39,110,631
New Mexico	3,261,040	83,322,695	10,595,326
North Dakota	5,326,944	47,033,210	4,721,524
Utah	13,707,055	379,960,984	22,262,416
Washington	528,025	14,853,343	105,605
Wyoming	120,404,308	1,638,362,980	60,894,526
Subtotal	171,162,306	$2,669,680,063	$152,470,369
COPPER			
Missouri	35,729	$ 11,183,379	$ 550,131
GARNET SANDS			
Idaho	4,086	$ 37,102	$ 1,378
GAS			
Alabama	(32,355)	$ (41,043)	$ (4,971)
Alaska	47,085,856	57,790,567	8,224,121
Arkansas	5,244,438	11,658,965	1,505,415
California	5,156,771	10,174,615	2,126,547
Colorado	37,251,492	63,616,259	7,064,882
Kansas	7,710,397	9,906,102	1,209,138
Kentucky	290,100	878,675	109,834
Louisiana	11,871,768	18,288,763	2,657,402
Maryland	10,439	6,263	783
Michigan	1,623,534	3,467,968	433,496
Mississippi	1,272,244	2,246,777	288,934
Montana	14,968,968	20,074,876	2,504,588
New Mexico	422,912,834	695,041,094	85,839,782
North Dakota	13,407,249	21,009,836	2,399,204
Ohio	76,476	152,953	19,119
Oklahoma	16,301,800	23,764,593	2,952,811
Pennsylvania	9,260	7,686	961
South Dakota	366,255	455,215	53,361
Texas	3,970,109	6,346,829	785,083
Utah	28,449,356	51,518,668	6,362,239
West Virginia	2,114,347	2,755,023	341,749
Wyoming	267,618,588	476,533,041	59,067,090
Subtotal	887,679,926	$1,475,653,725	$183,941,568

Table 19 (cont'd)

SUMMARY BY COMMODITY AND STATE OF VOLUME, VALUE, AND ROYALTIES

	PRODUCTION VOLUME	MARKET VALUE	ROYALTIES RECEIVED
LEONARDITE			
North Dakota	68	$ 527	$ 66
LIMESTONE			
Virginia	64,925	$ 346,134	$ 12,743
MAGNESIUM			
Utah	96,931	$ 862,061	$ 25,861
NITROGEN			
Wyoming	5,776	$ 21,678	$ 2,289
OIL			
Alabama	19,500	$ 51,490	$ 89,868
Alaska	1,375,912	22,087,643	2,737,168
Arkansas	2,479	40,952	5,124
California	19,884,609	257,417,946	31,791,870
Colorado	8,102,745	141,216,844	21,440,859
Florida	21,906	387,618	48,452
Kansas	256,019	4,353,871	562,244
Kentucky	4,400	75,910	11,304
Louisiana	1,430,544	25,395,129	2,786,851
Michigan	106,356	1,864,759	235,682
Mississippi	624,285	10,947,451	1,336,905
Montana	4,209,570	68,223,406	7,665,880
Nebraska	122,168	2,114,735	261,912
Nevada	3,145,419	33,277,960	4,159,745
New Mexico	21,840,599	372,487,190	45,872,467
North Dakota	9,872,501	161,967,416	18,646,892
Ohio	9,918	169,618	21,202
Oklahoma	214,437	3,708,114	463,781
Pennsylvania	2,876	52,310	6,539
South Dakota	509,500	8,253,114	1,031,639
Texas	378,686	7,642,595	803,488
Utah	6,516,132	105,001,154	13,013,191
Wyoming	71,326,893	1,162,680,852	136,076,684
Subtotal	149,977,454	$2,389,418,077	$289,069,747
OIL LOST			
California	148	$ 1,581	$ 198
New Mexico	3	52	7
Wyoming	264	4,792	599
Subtotal	415	$ 6,425	$ 804

FROM SELECTED ONSHORE FEDERAL MINERAL LEASES, 1987

	PRODUCTION VOLUME	MARKET VALUE	ROYALTIES RECEIVED
PHOSPHATE			
Florida	910	$ 4,368	$ 218
Idaho	3,385,726	44,522,301	2,226,115
Montana	8,762	132,168	6,608
Subtotal	3,395,398	$ 44,658,837	$ 2,232,941
POTASH			
California	99,825	$ 5,210,020	$ 260,501
New Mexico	1,451,393	81,094,761	1,621,904
Utah	16,860	1,012,660	30,381
Subtotal	1,568,078	$ 87,317,441	$ 1,912,786
PURGE LIQUOR			
Wyoming	7,061	$ 157,241	$ 7,862
QUARTZ CRYSTALS			
Arkansas	74,310	$ 113,558	$ 5,203
SAND AND GRAVEL			
Nevada	1,724,719	$ 4,344,017	$ 244,273
SODIUM			
California	1,744,537	$ 97,006,634	$ 4,850,333
New Mexico	292,720	355,078	17,759
Utah	39,646	76,546	2,292
Wyoming	1,919,263	125,209,926	6,260,498
Subtotal	3,996,166	$ 222,648,184	$ 11,130,882
SULFUR			
Montana	2,306	$ 100,090	$ 12,507
New Mexico	2,832	154,735	19,187
North Dakota	5,705	274,722	32,911
Wyoming	41,241	(14,622,622)	(861,105)
Subtotal	52,084	$ (14,093,075)	$ (796,500)
SYLVITE			
New Mexico	5,424	$ 2,170	$ 54
TRONA ORE			
Wyoming	2,426	$ 316,441	$ 15,822
ZINC			
Missouri	47,741	$ 17,358,508	$ 557,534
TOTAL		$7,375,632,622	$682,411,009

Table 11-b.

SUMMARY BY COMMODITY AND STATE OF VOLUME, VALUE, ROYALTIES, AND OTHER REVENUES

	PRODUCTION VOLUME	MARKET VALUE	REVENUES RECEIVED
BENTONITE			
Wyoming	9,380	$ 9,380	$ 3,752
CARBON DIOXIDE			
Colorado	203,782,859	101,101,557	12,127,643
New Mexico	10,103,176	4,905,684	614,406
Wyoming	879,596	635,520	40,436
Subtotal	214,765,631	106,642,761	12,782,485
CLAY			
Alabama	28,758	11,503	2,301
COAL			
Colorado	10,296,466	194,789,903	20,737,812
Montana	24,681,884	311,291,759	22,446,731
New Mexico	4,253,749	101,069,049	13,475,148
North Dakota	4,876,793	55,315,790	6,843,255
Oklahoma	31,644	904,136	20,583
Utah	10,631,069	302,463,575	16,321,635
Virginia	0	0	(23,089)
Washington	558,856	14,340,245	111,771
Wyoming	111,407,678	1,505,693,411	28,486,778
Subtotal	166,738,139	2,485,867,868	108,420,624
COPPER			
Missouri	39,176	10,015,360	407,285
FLUORSPAR			
Illinois	4,414	751,281	36,813
GARNET SANDS			
Idaho	5,250	14,961	1,870
GAS			
Alabama	284,485	536,224	46,416
Alaska	50,137,932	77,629,588	10,901,543
Arkansas	5,018,855	13,774,736	1,797,837
Califonia	6,524,243	15,239,086	3,065,423
Colorado	44,469,099	106,678,570	13,707,153
Kansas	7,901,163	8,950,958	1,005,418
Kentucky	329,613	1,014,076	139,669
Louisiana	11,491,304	15,784,151	2,161,330
Maryland	255	179	22
Michigan	1,353,655	4,324,905	256,407
Mississippi	1,563,483	3,439,163	410,064

FROM SELECTED ONSHORE FEDERAL MINERAL LEASES, 1986

	PRODUCTION VOLUME	MARKET VALUE	REVENUES RECEIVED
Montana	11,099,365	25,350,887	2,588,170
Nebraska	7,009	10,760	1,837
New Mexico	374,440,453	782,954,115	97,696,290
North Dakota	16,846,282	41,115,430	4,692,644
Ohio	200,943	67,385	7,055
Oklahoma	17,085,700	32,150,645	3,469,579
South Dakota	357,750	511,120	57,179
Texas	2,937,725	5,032,775	602,246
Utah	32,554,777	77,507,744	9,983,151
West Virginia	1,349,894	2,555,946	137,271
Wyoming	235,887,124	550,364,657	71,874,321
Subtotal	821,841,109	1,764,993,100	224,601,025
GASOLINE & LPG			
Alaska	2,277,382	592,698	74,087
Alabama	1,658	626	233
California	9,481,673	3,920,364	256,146
Colorado	5,041,738	2,758,489	313,672
Kansas	793,694	171,039	21,380
Louisiana	7,035,176	2,829,954	422,083
Mississippi	702	786	98
Montana	5,688,214	2,095,754	256,076
Nebraska	7,510	2,743	457
New Mexico	108,427,917	40,010,368	4,731,277
North Dakota	9,981,268	4,588,315	520,145
Oklahoma	1,522,386	407,115	30,474
South Dakota	62,342	21,820	2,727
Texas	1,660,228	496,001	70,954
Utah	16,673,771	5,050,919	623,712
Wyoming	138,967,396	31,567,988	3,821,287
SUBTOTAL	307,623,055	94,514,979	11,144,808
GEOTHERMAL			
California	13,694,297,520	135,926,067	16,820,622
Nevada	43,278,290	2,313,512	151,351
Utah	3,092,709,893	3,077,276	307,964
SUBTOTAL	16,830,285,703	141,316,855	17,279,937
GILSONITE			
Utah	5,457	387,304	48,413
HOT WATER			
California	14,186,942	1,020,069	102,007

Table 11-b. (Cont'd)

SUMMARY BY COMMODITY AND STATE OF VOLUME, VALUE, ROYALTIES, AND OTHER REVENUES

	PRODUCTION VOLUME	MARKET VALUE	REVENUES RECEIVED
IRON ORE			
Minnesota	71,411	1,551,047	62,248
LANGBEINITE			
New Mexico	504,525	28,948,366	680,235
LEAD			
Missouri	289,231	61,554,253	1,732,825
MAGNESIUM			
Utah	132,896	1,505,884	41,654
OIL			
Alabama	97,723	1,697,511	160,195
Alaska	1,531,448	21,920,806	2,720,962
Arkansas	3,705	56,403	6,945
California	20,826,447	252,362,151	30,908,583
Colorado	7,412,090	107,539,629	16,629,286
Florida	25,384	360,374	45,047
Kansas	230,237	3,551,778	455,244
Kentucky	4,076	62,899	9,435
Louisiana	1,349,207	22,282,197	2,345,337
Michigan	107,167	1,732,404	215,187
Mississippi	711,049	11,114,638	1,382,318
Montana	4,606,038	68,412,176	7,548,159
Nebraska	146,834	2,178,793	269,628
Nevada	2,787,446	26,583,769	3,345,201
New Mexico	23,104,610	368,929,611	46,209,491
North Dakota	11,413,393	165,379,797	19,566,235
Ohio	10,721	235,334	25,739
Oklahoma	217,869	3,611,615	428,522
South Dakota	553,152	7,970,367	887,255
Texas	336,261	5,353,592	741,734
Utah	6,512,093	86,278,807	10,767,847
Wyoming	75,310,537	1,069,870,090	124,021,213
Subtotal	157,297,487	2,227,484,741	268,689,563
PHOSPHATE			
Florida	97,976	1,621,856	81,093
Idaho	2,745,762	35,622,213	1,749,366
Montana	89,351	1,257,709	62,956
SUBTOTAL	2,933,089	38,501,778	1,893,415

FROM SELECTED ONSHORE FEDERAL MINERAL LEASES, 1986

	PRODUCTION VOLUME	MARKET VALUE	REVENUES RECEIVED
POTASH			
California	135,578	5,176,200	258,828
New Mexico	1,111,394	61,448,426	1,530,316
Utah	19,804	716,487	21,494
SUBTOTAL	1,266,776	67,341,113	1,810,638
PURGE LIQUOR			
Wyoming	20,454	529,368	26,471
QUARTZ CRYSTALS			
Arkansas	24,081	35,209	1,760
SAND AND GRAVEL			
Nevada	1,280,277	2,724,578	162,732
SODIUM			
California	1,462,682	91,698,121	4,584,951
New Mexico	300,644	253,033	12,652
Utah	43,509	82,908	2,488
Wyoming	2,208,896	162,255,049	8,112,862
SUBTOTAL	4,015,731	254,289,111	12,712,953
SULPHUR			
Montana	49,026	258,271	32,284
New Mexico	58,084	168,443	21,055
North Dakota	567,685	409,757	39,706
Wyoming	674,102	11,628,269	778,090
SUBTOTAL	1,348,897	12,464,740	871,135
SYLVITE			
New Mexico	212,441	84,976	2,124
TRONA ORE			
Wyoming	2,482	348,645	17,432
URANIUM			
Wyoming	136,655	3,567,714	222,982
ZINC			
Illinois	57	9,727	554
Missouri	67,804	15,174,597	538,306
SUBTOTAL	67,861	15,184,324	538,860
TOTAL		$7,321,661,268	$664,298,347

Attachment 8

A summary of Onshore Federal Minimum Royalties by State, for the years 1985 to 1989 is attached.

Data for the years 1980 through 1984 are not available.

These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

Table 11.--Summary of minimum royalties by State from Federal onshore mineral leases, 1985-89

	1985	1986	1987	1988	1989	1985-89
Alabama...........	$ 16,042	$ 16,042	$ 16,360	$ 16,041	$ 24,300	$ 88,785
Alaska............	1,683	1,047	1,947	295	295	5,267
Arizona...........	1,443	640	---	---	---	2,083
Arkansas..........	41,639	36,958	31,160	37,827	40,245	187,829
California........	5,505	40,757	27,068	26,392	58,939	158,661
Colorado..........	395,922	2,033,335	1,661,646	510,195	633,798	5,234,896
Florida...........	65	65	3,601	160	6,859	10,750
Georgia...........	---	---	---	1,090	---	1,090
Idaho.............	34,923	17,656	24,563	70,493	95,780	243,415
Illinois..........	549	1,098	549	1,164	1,844	5,204
Kansas............	(17,838)	24,035	4,071	16,890	9,445	36,603
Kentucky..........	1,171	8,760	6,211	7,661	19,608	43,411
Louisiana.........	2,131	921	2,498	34,885	37,206	77,641
Maryland..........	4,114	3,387	1,413	3,659	1,607	14,180
Michigan..........	2,932	2,152	2,192	(3,776)	9,556	13,056
Minnesota.........	1	---	170,310	48,660	48,660	267,631
Mississippi.......	5,802	8,124	9,107	2,261	17,406	42,700
Missouri..........	5,864	7,483	6,891	5,707	6,161	32,106
Montana...........	143,482	200,816	413,085	177,646	213,240	1,148,269
Nebraska..........	220	1,680	6,356	702	632	9,590
Nevada............	1,440	2,876	2,521	2,394	11,518	20,749
New Mexico........	411,220	512,496	2,497,894	689,765	1,561,148	5,672,523
North Carolina....	---	---	---	474	474	948
North Dakota......	53,751	23,663	21,092	46,391	42,003	186,900
Ohio..............	133	164	324	141	972	1,734
Oklahoma..........	19,432	23,015	16,665	19,637	15,777	94,526
Pennsylvania......	3,445	1,684	1,691	(768)	1,927	7,979
South Dakota......	4,945	15,566	12,615	15,063	21,118	69,307
Texas.............	11,281	10,328	5,505	4,863	4,532	36,509
Utah..............	231,569	177,324	237,610	277,518	536,782	1,460,803
Virginia..........	2,168	2,168	2,168	2,168	4,298	12,970
Washington........	---	---	---	4,840	---	4,840
West Virginia.....	43,168	46,030	40,418	40,793	56,633	227,042
Wyoming...........	354,186	4,701,078	9,149,789	9,218,165	11,113,552	34,536,770
Total.........	$1,782,388	$7,921,348	$14,377,320	$11,279,396	$14,596,315	$49,956,767

Attachment 9

A summary of Onshore Federal Rents by State, for the years 1985 to 1989 is attached.

Data for the years 1980 through 1984 are not available.

These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

Table 12.–Summary of rents by State from Federal onshore mineral leases, 1985-89

	1985	1986	1987	1988	1989	1985-89
Alabama........	$ 326,529	$ 145,248	$ 153,280	$ 157,611	$ 222,578	$ 1,005,246
Alaska.........	5,969,216	4,295,518	2,759,043	2,234,251	2,395,190	17,653,218
Arizona........	1,791,405	1,222,881	961,550	823,574	383,382	5,182,792
Arkansas.......	1,108,615	548,218	401,638	685,003	978,188	3,721,662
California.....	2,997,766	1,810,995	1,601,256	1,696,112	1,663,521	9,769,650
Colorado.......	9,633,633	8,005,907	7,458,601	7,471,013	7,371,890	39,941,044
Florida........	554,437	375,523	326,886	311,274	277,669	1,845,789
Georgia........	99,591	559	36	36	766	100,988
Idaho..........	3,558,084	1,628,226	826,500	629,181	368,402	7,010,393
Illinois.......	4,873	3,968	3,134	1,315	2,398	15,688
Indiana........	401	445	415	415	415	2,091
Iowa...........	---	1,440	180	---	---	1,620
Kansas.........	80,133	41,154	96,116	37,609	27,479	282,491
Kentucky.......	54,764	48,391	37,523	29,366	27,139	197,183
Louisiana......	266,625	238,159	169,248	144,390	148,733	967,155
Maryland.......	2,613	5,623	3,406	(758)	496	11,380
Michigan.......	300,085	428,784	460,452	397,514	755,503	2,342,338
Minnesota......	8,116	30,913	20,975	7,586	4,767	72,357
Mississippi....	733,632	651,992	578,660	568,985	577,788	3,111,057
Missouri.......	24,581	9,324	6,153	4,416	7,876	52,350
Montana........	11,850,125	7,977,652	5,605,711	5,022,967	4,508,170	34,964,625
Nebraska.......	204,749	129,710	86,091	60,193	47,941	528,684
Nevada.........	12,615,186	7,164,123	5,194,461	8,040,706	8,539,161	41,553,637
New Mexico.....	11,442,158	7,293,927	6,529,547	6,539,113	6,113,290	37,918,035
New York.......	11,981	9,236	8,489	11,022	9,949	50,677
North Carolina.	57,228	40,719	3,350	1,387	3,495	106,179
North Dakota...	835,847	479,541	656,173	614,944	541,086	3,127,591
Ohio...........	27,819	38,765	16,670	13,209	16,395	112,858
Oklahoma.......	508,230	463,503	421,289	418,987	516,128	2,328,137
Oregon.........	4,400,269	1,967,978	1,222,232	1,025,777	584,502	9,200,758
Pennsylvania...	2,093	3,005	8,633	(3,479)	(625)	9,627
South Carolina.	1,118	1,528	6,582	4,237	3,491	16,956
South Dakota...	948,123	744,865	733,654	689,311	550,496	3,666,449
Tennesse.......	16,952	13,374	10,442	9,701	10,834	61,303
Texas..........	280,715	279,668	212,494	181,886	241,954	1,196,717
Utah...........	13,735,114	8,282,556	7,342,707	7,066,064	7,334,916	43,761,357
Virginia.......	478,873	319,024	287,466	147,277	164,227	1,396,867
Washington.....	1,312,929	840,291	733,107	730,338	342,343	3,959,008
West Virginia..	260,516	382,409	270,171	335,525	230,455	1,479,076
Wisconsin......	16,214	60,195	72,967	110,574	45,380	305,330
Wyoming........	19,287,942	17,468,016	16,162,103	18,592,213	19,565,072	91,075,346
Total......	$105,809,280	$73,453,353	$61,449,391	$64,810,845	$64,582,840	$370,105,709

Attachment 10

A summary of Onshore Federal Bonuses for the years 1954 to 1989 is attached.

These data are extracted from published and unpublished Bureau of Land Management and Minerals Management Service sources.

Table 13.--Summary of bonuses paid on sales of Federal onshore mineral leases, 1954-89

	Oil & Gas		Other Minerals		Totals	
	Acres Leased	Bonuses Paid	Acres Leased	Bonuses Paid	Acres Leased	Bonuses Paid
1954.......	7,726	$ 255,912	4,362	$ 59,260	12,088	$ 315,172
1955.......	16,145	833,305	3,319	414,804	19,464	1,248,109
1956.......	21,497	1,241,479	7,608	170,293	29,105	1,411,772
1957.......	182,233	1,197,405	14,663	297,265	196,896	1,494,670
1958.......	10,564	274,432	28,968	1,927,505	39,532	2,201,937
1959.......	32,283	882,831	20,474	305,847	52,757	1,188,678
1960.......	21,947	668,865	11,748	111,291	33,695	780,156
1961.......	27,466	12,395,374	25,863	1,030,725	53,329	13,426,099
1962.......	32,711	7,059,451	41,507	223,379	74,218	7,282,830
1963.......	53,124	2,089,236	54,244	475,288	107,368	2,564,524
1964.......	20,335	649,918	32,290	1,112,824	52,625	1,762,742
1965.......	46,572	1,805,432	30,009	1,072,714	76,581	2,878,146
1966.......	35,453	572,837	48,979	1,071,869	84,432	1,644,706
1967.......	61,665	764,296	47,606	936,656	109,271	1,700,952
1968.......	71,505	972,523	95,303	3,102,240	166,808	4,074,763
1969.......	36,969	754,543	---	---	36,969	754,543
1970.......	38,724	478,890	18,493	370,395	57,217	849,285
1971.......	52,102	1,163,136	28,706	7,627,114	80,808	8,790,250
1972.......	88,326	1,117,543	---	---	88,326	1,117,543
1973.......	89,315	2,203,370	133	33,635	89,448	2,237,005
1974.......	65,247	2,295,623	24,493	449,192,426	89,740	451,488,049
1975.......	112,401	8,202,991	362	3,618	112,763	8,206,609
1976.......	74,616	4,934,208	---	---	74,616	4,934,208
1977.......	80,529	7,820,947	---	---	80,529	7,820,947
1978.......	76,438	12,705,965	574	31,380	77,012	12,737,345
1979.......	62,447	7,597,171	6,475	816,008	68,922	8,413,179
1980.......	71,623	22,048,947	9,897	933,369	81,520	22,982,316
1981.......	126,070	103,314,389	60,034	25,358,616	186,104	128,673,005
1982.......	991,186	95,304,216	352,510	29,966,642	1,343,696	125,270,858
1983.......	131,702	31,150,106	173,694	30,958,099	305,396	62,108,205
1984.......	394,264	49,484,379	17,955	584,422	412,219	50,068,801
1985.......	517,612	47,367,665	4,444	227,094	522,056	47,594,759
1986.......	353,055	26,643,088	38,420	3,565,974	391,475	30,209,062
1987.......	211,488	33,345,494	6,333	1,407,220	217,821	34,752,714
1988.......	1,913,023	51,208,738	75,408	3,523,373	1,988,431	54,732,111
1989.......	2,831,737	62,847,022	26,963	16,746,107	2,858,700	79,593,129
Total..	8,960,100	$603,651,727	1,311,837	$583,657,452	10,271,937	$1,187,309,179

NOTE: Fiscal year data from Public Land Statistics, Bureau of Land Management.

Attachment 11

A detailed listing of bonuses paid on Federal leases for the years 1980 through 1989, segregated by state and commodity is attached.

Attachment 12

A copy of the "Mineral Revenues 1989 Report on Receipts From Federal and Indian Leases" recently published by the Minerals Management Service is included for your general reference.

Table 23.--1989 bonuses paid by State and commodity on sales of Federal onshore mineral leases

	No. of Leases	Acres Leased	Bonuses Paid
Alabama			
Oil & Gas.....	37	16,503	$ 251,747
Arkansas			
Oil & Gas.....	195	88,746	20,287,316
California			
Geothermal....	2	1,676	29,030
Oil & Gas.....	63	26,690	446,279
Colorado			
Oil & Gas.....	460	287,992	2,083,968
Florida			
Oil & Gas.....	48	46,585	241,263
Idaho			
Garnet........	1	67	8,002
Phosphate.....	1	160	124,132
Illinois			
Oil & Gas.....	3	844	228,985
Kansas			
Oil & Gas.....	40	12,051	2,977,360
Louisiana			
Oil & Gas.....	3	909	24,492
Michigan			
Oil & Gas.....	306	137,751	3,748,892
Mississippi			
Oil & Gas.....	92	34,190	204,917
Montana			
Coal..........	1	981	98,200
Oil & Gas.....	123	48,116	115,104
Nevada			
Geothermal....	7	14,174	286,743
Oil & Gas.....	189	250,177	1,618,841
New Mexico			
Oil & Gas.....	657	383,899	8,580,172
North Dakota			
Oil & Gas.....	46	12,085	76,107
Oklahoma			
Oil & Gas.....	62	42,848	922,468
South Dakota			
Oil & Gas.....	13	7,061	24,507
Texas			
Oil & Gas.....	55	32,384	490,377
Utah			
Coal..........	1	9,905	16,200,000
Oil & Gas.....	289	299,533	3,374,512
Virginia			
Oil & Gas.....	28	17,000	204,368
Wyoming			
Oil & Gas.....	1,346	1,086,373	16,945,347
Total........	**4,068**	**2,858,700**	**$79,593,129**

NOTE: Fiscal year data from Public Land Statistics, 1989, Bureau of Land Management.

Table 23.--1988 bonuses paid by State and commodity on sales of Federal onshore mineral leases

	No. of Leases	Acres Leased	Bonuses Paid
ALABAMA			
Oil & Gas	1	40	$ 2,440
ARKANSAS			
Oil & Gas	81	111,006	549,843
CALIFORNIA			
Geothermal	12	22,918	2,944,117
Oil & Gas	11	1,102	111,933
COLORADO			
Oil & Gas	159	114,697	1,512,372
KANSAS			
Oil & Gas	13	1,757	3,722,530
LOUISIANA			
Oil & Gas	4	849	115,650
MISSISSIPPI			
Oil & Gas	2	221	25,586
MONTANA			
Oil & Gas	129	76,911	336,874
NEBRASKA			
Oil & Gas	1	40	800
NEVADA			
Geothermal	24	50,855	469,317
Oil & Gas	159	277,992	2,513,489
NEW MEXICO			
Oil & Gas	318	165,648	10,298,729
NORTH DAKOTA			
Oil & Gas	22	4,173	79,509
OKLAHOMA			
Oil & Gas	35	3,059	981,216
SOUTH DAKOTA			
Oil & Gas	15	11,820	77,849
TEXAS			
Oil & Gas	7	2,495	214,095
UTAH			
Geothermal	1	918	3,162
Oil & Gas	153	184,934	3,617,536
WYOMING			
Bentonite	1	400	6,200
Oil & Gas	1,354	956,279	27,048,287
Sodium	1	317	100,277
TOTAL	2,503	1,988,431	$54,732,111

NOTE: Fiscal year data from Public Land Statistics, 1988, Bureau of Land Management.

Table 22.

1987 BONUSES PAID ON SALES BY STATE AND COMMODITY FOR ONSHORE FEDERAL MINERAL LEASES

	No. of Leases	Acres Leased	Bonuses Paid
ALABAMA			
Oil & Gas	1	80	$ 2,653
ARKANSAS			
Oil & Gas	2	480	26,906
Other	1	80	22,200
COLORADO			
Coal	1	344	34,431
Oil & Gas	27	6,929	326,696
FLORIDA			
Phosphate	1	40	4,600
ILLINOIS			
Oil & Gas	1	471	20,604
KANSAS			
Oil & Gas	105	20,549	15,851,679
KENTUCKY			
Coal	2	1,744	174,400
MICHIGAN			
Oil & Gas	1	120	6,600
MISSISSIPPI			
Oil & Gas	4	1,922	18,662
MONTANA			
Coal	1	110	100,000
Oil & Gas	38	4,225	188,163
NEW MEXICO			
Oil & Gas	99	20,347	3,369,287
NEW YORK			
Oil & Gas	4	1,922	32,861
NORTH DAKOTA			
Coal	1	160	16,000
Oil & Gas	64	10,463	268,153
OHIO			
Oil & Gas	4	634	34,522
OKLAHOMA			
Oil & Gas	11	1,266	144,434
SOUTH DAKOTA			
Oil & Gas	22	5,752	187,601
TEXAS			
Oil & Gas	3	101	51,070
UTAH			
Coal	1	256	54,998
Oil & Gas	50	27,659	1,557,953
WEST VIRGINIA			
Oil & Gas	5	2,368	66,309
WYOMING			
Oil & Gas	449	106,200	11,191,341
Sodium	2	3,599	1,000,591
TOTAL	900	217,821	$34,752,714

NOTE: Fiscal year data from Public Land Statistics, 1987, Bureau of Land Management.

Table 12.

1986 BONUSES PAID ON SALES BY STATE AND COMMODITY FOR ONSHORE FEDERAL MINERAL LEASES

	No. of Leases	Acres Leased	Bonuses Paid
ALABAMA			
Oil & Gas	3	171	$ 511,824
Coal	2	1,200	120,000
ARKANSAS			
Oil & Gas	24	15,321	1,667,920
COLORADO			
Oil & Gas	49	9,995	510,006
Coal	1	1,046	860,923
ILLINOIS			
Oil & Gas	1	80	4,000
KANSAS			
Oil & Gas	4	298	9,859
LOUISIANA			
Oil & Gas	16	952	133,349
MICHIGAN			
Oil & Gas	2	634	102,182
MISSISSIPPI			
Oil & Gas	11	1,530	364,558
MONTANA			
Oil & Gas	32	5,575	594,902
Coal	1	9,445	944,500*
NEBRASKA			
Oil & Gas	5	2,563	100,014
NEVADA			
Oil & Gas	5	720	$ 125,163
Geothermal	11	23,355	169,037
NEW MEXICO			
Oil & Gas	236	41,816	8,731,424
NORTH DAKOTA			
Oil & Gas	23	2,977	376,612
Coal	1	240	23,993
OHIO			
Oil & Gas	5	362	7,593
OKLAHOMA			
Oil & Gas	24	3,018	388,717
PENNSYLVANIA			
Oil & Gas	1	315	40,015
SOUTH DAKOTA			
Oil & Gas	1	120	9,095
TEXAS			
Oil & Gas	2	211	66,430
UTAH			
Oil & Gas	67	29,410	1,422,617
Coal	1	160	16,160
WYOMING			
Oil & Gas	752	236,987	11,476,809
Coal	1	2,974	1,431,360
TOTAL	1,281	391,475	$30,209,062

*Equalization payment on exchange lease.

NOTE: Fiscal year data from Public Land Statistics, 1986, Bureau of Land Management.

Table 12:

1985 BONUSES PAID ON SALES BY STATE AND COMMODITY FOR ONSHORE FEDERAL MINERAL LEASES

	No. of Leases	Acres Leased	Bonuses Paid
ALABAMA:			
OIL & GAS	1	516	$ 32,645
ALASKA:			
OIL & GAS	8	193,597	5,529,228
ARKANSAS:			
OIL & GAS	15	1,560	257,485
CALIFORNIA:			
OIL & GAS	62	10,632	2,210,946
GEOTHERMAL	1	1,684	50,648
SODIUM	5	2,401	32,031
COLORADO:			
OIL & GAS	81	21,295	412,137
COAL	1	30	7,500
KANSAS:			
OIL & GAS	10	1,519	862,640
KENTUCKY:			
OIL & GAS	1	67	465
LOUISIANA:			
OIL & GAS	14	1,963	203,093
MICHIGAN:			
OIL & GAS	13	1,906	113,820
MISSISSIPPI:			
OIL & GAS	21	2,242	168,347
MONTANA:			
OIL & GAS	76	12,238	$ 634,833
NEVADA:			
OIL & GAS	14	1,311	205,448
NEW MEXICO:			
OIL & GAS	326	67,893	13,524,629
NORTH DAKOTA:			
OIL & GAS	21	4,363	2,877,263
OHIO:			
OIL & GAS	7	280	19,769
OKLAHOMA:			
OIL & GAS	129	1,077,695	2,387,181
SOUTH DAKOTA:			
OIL & GAS	7	1,120	159,452
TEXAS:			
OIL & GAS	38	1,523	483,980
UTAH:			
OIL & GAS	110	43,272	2,237,924
COAL	1	160	16,160
VIRGINIA:			
OIL & GAS	2	267	6,678
WYOMING:			
OIL & GAS	640	140,592	16,343,420
COAL	1	169	120,755
TOTAL:	1,605	1,590,295	$48,898,477

NOTE: Fiscal year data from Public Land Statistics, 1985, Bureau of Land Management.

Table 12:

1984 BONUSES PAID ON SALES BY STATE AND COMMODITY OF ONSHORE FEDERAL MINERAL LEASES

	No. of Leases	Acres Leased	Bonuses Paid
ALABAMA:			
OIL & GAS	3	783	$ 15,920
ALASKA:			
OIL & GAS	10	227,021	11,196,431
ARKANSAS:			
OIL & GAS	7	1,939	81,279
CALIFORNIA:			
OIL & GAS	28	3,447	261,238
GEOTHERMAL	9	10,845	378,146
COLORADO:			
OIL & GAS	32	6,768	503,291
FLORIDA:			
PHOSPHATE	2	80	23,200
IDAHO:			
GEOTHERMAL	4	5,901	1,180
KENTUCKY:			
OIL & GAS	1	222	2,750
LOUISIANA:			
OIL & GAS	17	2,412	205,479
MICHIGAN:			
OIL & GAS	10	741	123,391
MISSISSIPPI:			
OIL & GAS	7	2,173	286,407
MONTANA:			
OIL & GAS	21	1,671	$ 328,859
NEW MEXICO:			
OIL & GAS	372	61,418	11,380,651
NORTH DAKOTA:			
OIL & GAS	7	668	314,494
OHIO:			
OIL & GAS	2	380	9,339
OKLAHOMA:			
OIL & GAS	38	3,168	426,207
OREGON:			
GEOTHERMAL	1	1,000	41,896
SOUTH DAKOTA:			
OIL & GAS	2	400	83,221
TEXAS:			
OIL & GAS	2	463	20,498
UTAH:			
OIL & GAS	92	37,809	1,848,179
COAL	1	129	140,000
WYOMING:			
OIL & GAS	228	42,781	22,396,745
TOTAL:	896	412,219	$50,068,801

NOTE: Fiscal year data from Public Land Statistics, 1984, Bureau of Land Management.

Table 12:

1983 BONUSES PAID ON SALES OF ONSHORE FEDERAL MINERAL LEASES BY STATE AND COMMODITY

	No. of Leases	Acres Leased	Bonuses Paid
ALABAMA:			
Coal	4	1,715	$ 515,074
ALASKA:			
Oil & gas	2	23,133	5,723,850
ARKANSAS:			
Oil & gas	11	2,469	433,288
CALIFORNIA:			
Geothermal	17	22,393	3,559
COLORADO:			
Oil & gas	50	13,057	373,450
LOUISIANA:			
Oil & gas	6	684	245,062
MICHIGAN:			
Oil & gas	1	80	2,800
MISSISSIPPI:			
Oil & gas	16	3,489	355,425
MISSOURI:			
Oil & gas	1	1,329	43,193
MONTANA:			
Oil & gas	12	2,106	332,406
Coal	1	2,096	4,450,000
NEW MEXICO			
Oil & Gas	224	44,604	14,599,475
Coal	1	161	16,100
NORTH DAKOTA			
Oil & Gas	4	760	$ 301,919
OHIO			
Oil & Gas	9	1,719	74,017
OKLAHOMA			
Oil & Gas	23	1,598	302,918
Coal	3	1,269	141,917
OREGON			
Geothermal	67	138,577	2,141,097
PENNSYLVANIA			
Oil & Gas	1	162	10,440
TEXAS			
Oil & Gas	1	66	337,501
UTAH			
Oil & Gas	51	18,273	4,617,317
WASHINGTON			
Geothermal	1	2,307	720
WYOMING			
Oil & Gas	93	18,173	3,397,045
Coal	2	5,176	23,689,632
TOTAL:	601	305,396	$62,108,205

NOTE: Fiscal year data in Public Land Statistics, 1983, Bureau of Land Management.

Table 12:

1982 BONUSES PAID ON SALES OF ONSHORE FEDERAL MINERAL LEASES BY STATE AND COMMODITY

	No. of Leases & Acres		Bonuses Paid
ALABAMA:			
Oil & gas	3	120	$ 208,105
Coal	9	8,028	1,009,065
ALASKA:			
Oil & gas	38	905,985	71,353,505
ARKANSAS:			
Oil & gas	2	680	1,034,438
CALIFORNIA:			
Geothermal	148	271,008	23,383,071
COLORADO:			
Oil & gas	63	18,358	1,026,390
FLORIDA:			
Phosphate	5	1,483	40,162
KENTUCKY:			
Oil & gas	2	226	3,768
Coal	1	1,965	49,125
LOUISIANA:			
Oil & gas	1	40	800
MISSISSIPPI:			
Oil & gas	24	3,563	599,450
MONTANA:			
Oil & gas	23	6,893	371,344
Coal	4	4,815	141,788
NEVADA:			
Geothermal	8	15,304	59,875
NEW MEXICO			
Oil & Gas	64	11,004	$ 8,122,534
Geothermal	8	13,675	14,270
NORTH DAKOTA			
Oil & gas	16	1,759	1,059,471
OKLAHOMA			
Oil & Gas	28	2,034	621,941
OREGON			
Geothermal	6	13,029	112,019
SOUTH DAKOTA			
Oil & gas	5	840	216,570
TEXAS			
Oil & Gas	6	1,725	1,251,370
UTAH			
Oil & Gas	46	17,786	4,328,541
Geothermal	2	4,210	14,396
Coal	8	16,686	5,142,640
WASHINGTON			
Geothermal	1	2,307	231
WYOMING			
Oil & Gas	124	20,173	5,105,989
TOTAL:	645	1,343,696	$125,270,858

NOTE: Fiscal year data in Public Land Statistics, 1982, Bureau of Land Management.

TABLE 62.—*Competitive mineral leases issued and bonuses received, fiscal year 1981*

Type of mineral by State	Public domain lands			Acquired lands			Total		
	Leases issued	*Acres*	*Bonus bids*	*Leases issued*	*Acres*	*Bonus bids*	*Leases issued*	*Acres*	*Bonus bids*
Oil and gas									
Arkansas	2	440	$347,763.60	63	24,619	$42,177,508.00	65	25,059	$42,525,271.60
Colorado	1	638	11,609.35	....	....	....	1	638	11,609.35
Kansas	1	40	1,000.00	....	....	....	1	40	1,000.00
Louisiana	12	657	222,965.97	2	88	10,460.00	14	745	233,425.97
Michigan	....	....	....	1	40	50,127.00	1	40	50,127.00
Mississippi	1	13	68.51	17	3,343	14,901,206.95	18	3,356	14,901,275.46
Montana	43	7,443	1,399,102.01	2	320	35,581.20	45	7,763	1,434,683.21
New Mexico	144	38,747	30,398,490.84	....	....	....	144	38,747	30,398,490.84
Ohio	....	....	....	12	6,195	46,506.88	12	6,195	46,506.88
Oklahoma	30	1,258	631,746.55	6	955	1,692,984.25	36	2,213	2,324,730.80
Texas	....	....	....	8	2,742	219,443.67	8	2,742	219,443.67
Utah	28	8,708	2,455,432.61	....	....	....	28	8,708	2,455,432.61
Virginia	....	....	....	1	402	40,208.40	1	402	40,208.40
Wyoming	145	28,624	8,528,999.51	8	798	143,184.00	153	29,422	8,672,183.51
Total oil and gas	407	86,568	43,997,178.95	120	39,502	59,317,210.35	527	126,070	103,314,389.30
Coal									
Colorado	7	21,860	9,780,780.00	....	....	....	7	21,860	9,780,780.00
Montana	1	440	11,000.00	....	....	....	1	440	11,000.00
North Dakota	1	80	2,000.00	....	....	....	1	80	2,000.00
Utah	5	10,855	14,200,411.20	....	....	....	5	10,855	14,200,411.20
Wyoming	4	10,564	196,571.00	....	....	....	4	10,564	196,571.00
Total coal	18	43,799	24,190,762.20	....	....	....	18	43,799	24,190,762.20
Geothermal resources									
California	1	10	45,176.11	....	....	....	1	10	45,176.11
Nevada	2	4,555	36,747.68	....	....	....	2	4,555	36,747.68
Oregon	5	11,670	1,085,929.30	....	....	....	5	11,670	1,085,929.30
Total geothermal resources	8	16,235	1,167,853.09	....	....	....	8	16,235	1,167,853.09
Grand Total	433	146,602	69,355,794.24	120	39,502	59,317,210.35	553	186,104	128,673,004.59

TABLE 73.—*Competitive mineral leases issued and bonuses received, fiscal year 1980*

Type of mineral by State	Public lands			Acquired lands			Total		
	Number	*Acres leased*	*Bonus received*	*Number*	*Acres leased*	*Bonus received*	*Number*	*Acres leased*	*Bonus received*
Oil and gas									
Alabama	1	41	$2,849.00	.....	.....	.....	1	41	$2,849.00
Arkansas	.....	.....	.....	1	80	$9,008.00	1	80	9,008.00
California	1	120	4,800.00	.....	.....	.....	1	120	4,800.00
Colorado	42	14,315	2,752,851.95	2	232	59,467.00	44	14,547	2,812,318.95
Louisiana	5	402	26,919.78	7	2,343	15,399.40	12	2,745	42,319.18
Mississippi	.....	.....	.....	2	192	707.72	2	192	707.72
Montana	31	4,897	467,144.68	1	20	500.00	32	4,917	467,644.68
New Mexico	68	15,534	7,311,495.00	.....	.....	.....	68	15,534	7,311,495.00
North Dakota	10	2,973	250,142.30	.....	.....	.....	10	2,973	250,142.30
Oklahoma	20	1,451	706,412.00	14	5,637	2,719,565.00	34	7,088	3,425,977.00
South Dakota	1	80	6,640.00	.....	.....	.....	1	80	6,640.00
Texas	.....	.....	.....	15	4,842	1,260,612.00	15	4,842	1,260,612.00
Utah	20	5,674	783,586.77	.....	.....	.....	20	5,674	783,586.77
West Virginia	.....	.....	.....	1	80	444.32	1	80	444.32
Wyoming[1]	58	12,630	5,669,201.78	1	80	1,200.00	59	12,710	5,670,401.78
Total oil and gas	257	58,117	17,982,043.26	44	13,506	4,066,903.44	301	71,623	22,048,946.70
Coal									
Colorado	4	1,235	54,882.50	.....	.....	.....	4	1,235	54,882.50
Montana	1	61	1,550.00	.....	.....	.....	1	61	1,550.00
New Mexico	1	3,856	102,500.00	.....	.....	.....	1	3,856	102,500.00
NorthDakota	2	1,828	45,725.00	.....	.....	.....	2	1,828	45,725.00
Oklahoma	1	140	14,070.00	.....	.....	.....	1	140	14,070.00
Utah	1	697	363,642.00	.....	.....	.....	1	697	363,642.00
Wyoming	3	2,145	10,725.00	.....	.....	.....	3	2,145	10,725.00
Total coal	13	9,962	593,094.50	.....	.....	.....	13	9,962	593,094.50
Geothermal resources									
Nevada	15	30,813	38,632.01	.....	.....	.....	15	30,813	38,632.01
New Mexico	4	7,063	240,632.00	.....	.....	.....	4	7,063	240,632.00
Oregon	12	20,971	474,813.84	.....	.....	.....	12	20,971	474,813.84
Total geothermal	31	58,847	754,077.85	.....	.....	.....	31	58,847	754,077.85
Potassium									
New Mexico	1	2,080	351,000.00	.....	.....	.....	1	2,080	351,000.00
Grand Total	302	129,006	19,680,215.61	44	13,506	4,066,903.44	346	142,512	23,747,119.05

[1] Includes Kansas and Nebraska.

Senator Bumpers - Re: S. 1126

1. **Does the Administration plan to submit to Congress legislation implementing the changes to the Mining Law supported in the Department of the Interior's testimony?**

ANSWER:

On September 6, 1990, Director Jamison in a direct response to a question from Chairman Rahall of the House Subcommittee on Mining and Natural Resources, stated that there would be no Administration proposal. Instead, the Administration would actively work with the Congress to make any necessary changes to the Mining Law as a part the ongoing legislative process.

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Senator Bumpers - Re: S. 1126

2. Please provide the amount and value of gold produced from Federal lands, by state, in 1989.

ANSWER:

This information is not available. Production reporting from Federal lands is not a requirement under the Mining Law of 1872, as amended, and the Bureau of Mines' Mineral Information Survey forms do not ask companies to distinguish between production on private, state, Indian, and federal lands. The best figures available are based on the Bureau of Mines' Mineral Information Surveys data, a voluntary questionnaire reporting system. However, because these figures include all types of land in the United States, they will be higher than federal land production. For your convenience, we have attached Table 2 and Table 6 from Gold and Silver in March, April, May, and June 1990, Mineral Industry Surveys, Bureau of Mines, Department of the Interior (see Enclosures). Table 2 provides, by state, mine production in kilograms (one kilogram equals 32.1507 troy ounces) and Table 6 provides selected prices of gold bullion in dollars per troy ounce. The value of production by state can be estimated by multiplying the production in kilograms by 32.1507 kilograms per troy ounce to get the production in troy ounces. This figure, by state, can then be multiplied by the yearly average price ($382.59 per troy ounce; Engelhard Industries) on Table 6 to get the value of gold production for each State in 1989. Again, these figures are for total production reported for all lands in the United States. The results of the calculations are as follows:

Gold Production Estimates for the United States for 1989

State	1989 (Kg)	1989 (1,000 Tr. Oz.)	1989 ($ Million)
Alaska	5,756	185.1	70.6
Arizona	2,810	90.3	34.4
California	29,804	958.2	365.5
Colorado	3,448	110.9	42.3
Idaho	3,056	98.2	37.5
Montana	11,623	373.7	142.5
Nevada	154,573	4,969.6	1,895.6
Other (MI, NM, OR, SC, SD, UT, WA)	54,470	1,751.2	668.0
TOTAL	265,541	8,537.2	3,256.4

NOTE: The total troy ounce and dollar figures in the above chart are rough estimates due to rounding the figures.

One method to roughly estimate the amount and value of gold production from Federal lands, though highly inaccurate, is to multiply the above figures by the percentage of Federal land in each State. This assumes an homogenous distribution of gold producers throughout each State. Percentage figures are taken from the BLM 1989 Public Land Statistics (Table 4, page 5) which provides Fiscal Year 1988 statistics. It should be noted, however, that these percentage figures, and, therefore, Federal production and Federal value figures given below, are grossly inflated when considering the amount of Federal land available for exploration and development under the Mining Law of 1872, as amended. Federal land as shown in the Public Land Statistics include lands withdrawn from locatable mineral entry, national parks, military lands, fish and wildlife preserves, reclamation lands, and other land classifications where mining is not allowed. They also include acquired lands and Indian lands where locatable minerals are leasable. Therefore, estimates of the amount of production and the value produced could be as much as 20-40% less than the figures we have calculated. The following chart shows these gold production estimates:

Gold Production Estimates for Federal Lands for 1989

State	Total 1989 (Kg)	Total 1989 ($ Million)	% Federal Land	Federal Production (Kg)	Federal Value ($ Mil.)
Alaska	5,756	70.6	81.0	4,662	57.2
Arizona	2,810	34.4	44.5	1,251	15.3
California	29,804	365.5	44.5	13,263	162.6
Colorado	3,448	42.3	29.8	1,028	12.6
Idaho	3,056	37.5	60.6	1,852	22.7
Montana	11,623	142.5	29.4	3,417	41.9
Nevada	154,573	1,895.6	78.9	121,958	1,495.6
Other (MI, NM, OR, SC, SD, UT, WA)	54,470	668.0	(Avg.) 27.3	14,870	182.4
TOTAL	265,541	3,256.4		162,301	1,990.3

Table 2. - Mine production of recoverable gold in the United States 1/
(Kilograms 2/)

State	1988	1989 (Final)	1990 p/ February r/	1990 p/ March
Alaska----------	4,210	5,756	79	98
Arizona---------	4,549	2,810	176	203
California------	22,442	29,804	2,398	2,386
Colorado--------	5,126	3,448	243	239
Idaho-----------	3,218	3,057	208	98
Montana---------	9,175	11,623	727	893
Nevada----------	114,322	154,573	13,078	13,317
Other States 3/	37,873	54,470	3,663	4,265
Total--------	200,914	265,541	20,572	21,499

State	1990 p/ April	1990 p/ May	1990 p/ June	1990 p/ January-June
Alaska----------	915	934	934	3,045
Arizona---------	200	216	205	1,199
California------	2,496	2,466	2,261	14,481
Colorado--------	227	226	236	1,400
Idaho-----------	203	231	233	1,181
Montana---------	1,045	1,128	1,148	5,703
Nevada----------	14,371	14,117	14,917	83,293
Other States 3/	4,212	3,882	3,598	24,183
Total--------	23,668	23,200	23,530	134,485

p/Preliminary. r/Revised.

1/Data may not add to totals shown because of independent rounding.

2/One kilogram equals 32.1507 troy ounces.

3/Includes Michigan, New Mexico, Oregon, South Carolina, South Dakota, Utah, and Washington.

U. S. mine production of gold by month

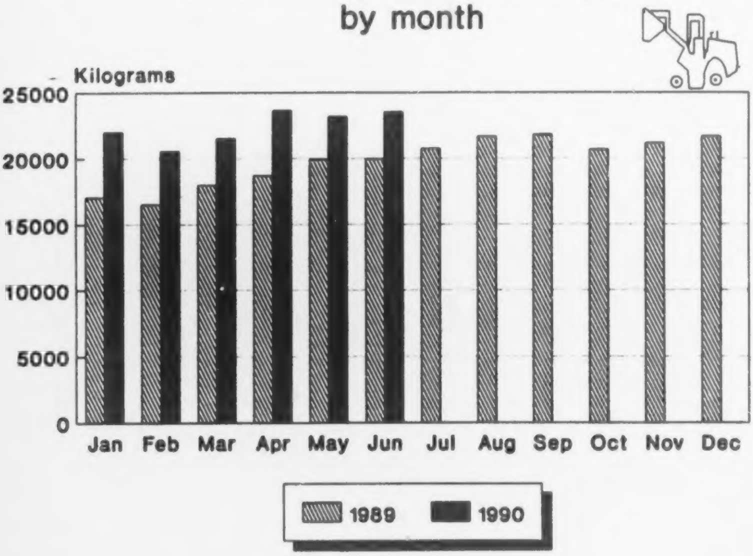


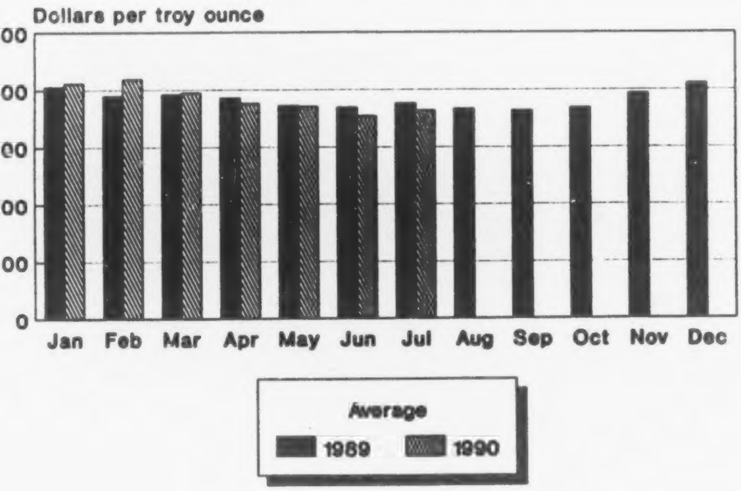
Table 6. - Selected prices, gold bullion
(Dollars per troy ounce)

	Engelhard Industries			Handy and Harman	London final
	Low/date	High/date	Average	Average	Average
1989:					
March	384.25/29	396.82/20	391.46	390.14	390.15
April	378.84/28	391.56/13	385.70	384.40	384.40
May	361.01/22	379.89/03	372.61	371.32	371.06
June	359.96/13	377.59/29	368.90	367.60	367.60
July	369.58/31	386.81/06	376.29	374.98	375.04
August	361.06/29,31	371.78/04	366.19	364.93	365.14
September	357.00/15	370.28/27	363.16	361.89	361.75
October	362.31/11	376.59/31	368.16	366.84	366.88
November	374.33/01	415.10/27	393.64	392.32	394.26
December	399.93/28	416.86/11,12	410.44	409.15	409.39
Year	357.00 (Sept. 15)	416.86 (Dec. 11,12)	382.58	381.28	381.43
1990:					
January	396.32/03	422.12/24	411.46	410.11	410.11
February	408.89/27	425.12/07	418.20	416.83	416.81
March	369.28/27	r/406.69/06	394.38	393.06	393.06
April	369.03/30	379.69/05	375.54	374.27	374.24
May	364.32/31	376.39/22	370.41	369.19	369.05
June	347.09/14	364.73/01	353.58	352.33	352.33
July	352.70/12	374.03/25	363.78	362.53	362.53
Year to date	347.09 (June 14)	425.12 (Feb. 07)	383.91	382.62	382.59

r/Revised.

Source: Metals Week.

Selected prices, gold bullion
Engelhard Industries



Senator Bumpers - Re: S. 1126

3. Please provide the total United States nonfuel mineral production, by value and volume. What minerals are included in nonfuel mineral production?

ANSWER:

This information is collected by the Bureau of Mines through its Mineral Information Surveys, a voluntary questionnaire and reporting system. Figures for 1986 through 1988 can be found in Table 1, Survey Methods and Statistical Summary of Nonfuel Minerals Yearbook, 1988, U.S. Department of the Interior, Bureau of Mines. The Bureau of Mines has kindly supplied a preliminary version of Table 1 for 1987 through 1989 (see Enclosure).

Please keep in mind that several of the mineral commodities listed on these tables include minerals and materials that are normally considered salable (peat, clays, sand and gravel, stone, and asphalt aggregate) and leasable (phosphate rock, potassium salts, salt, sodium carbonate, sodium sulphate, and sulphur in Louisiana and New Mexico) minerals. Also, some of the commodities listed are products, not minerals (i.e., cement). Some of these mineral materials can be either locatable or salable depending on their uses, physical properties, or chemical composition (vermiculite, clays, sand and gravel, and stone).

Table 1, Survey Methods and Statistical Summary of Nonfuel Minerals Yearbook, preliminary for 1987 - 1989, shows a grand total production value for nonfuel minerals in the United States of approximately $32.3 billion for 1989. No total production quantity is given because the commodities listed are in different units of measure. However, total quantities produced are given for each commodity.

Because of the mixture of locatable, leasable, and salable minerals on this table, and because the figures include all lands in the United States (private, State, and Federal), reliable projections on possible royalties for locatable minerals would be difficult to obtain from these figures.

Senator Bumpers - Re: S. 1226

4. Please provide the number of Federal mineral leases in effect in 1989 and the number of payors.

ANSWER:

At the end of FY 1989, there were 84,098 onshore Federal leases in effect. There were 1,700 payors for all jurisdictional leases.

Question #4, continued

o Please explain how the "single payor" concept works for oil and gas.

ANSWER:

The Minerals Management Service utilizes the "multiple payor" concept which allows each company to pay and report for its interest in each lease. The "single payor" concept for oil and gas would require one company to be responsible for reporting and paying all obligations on a lease, including those of other companies. The Minerals Management Service has studied possible implementation of the "single payor" concept, but has not adopted it due to the administrative burden on industry and the fact that MMS has sufficient safeguards to assure reporting of all production.

Question #4, continued

o Please provide a copy of a payor report or any other royalty documentation that Federal mineral producers are required to submit for royalty purposes. Please provide this for oil, gas, and coal, where such documentation differs.

ANSWER:

Copies of the Minerals Management Service forms used for reporting royalties are attached.

[redacted]

Table 1.--Nonfuel mineral production1/ in the United States

Mineral	1987		1988		1989	
	QUANTITY	VALUE (thousands)	QUANTITY	VALUE (thousands)	QUANTITY	VALUE (thousands)
METALS						
Bauxite ---------------------- metric tons, dried equivalent --	575,574	$10,916	587,889	$10,566	684,091	$12,855
Beryllium concentrates -------------------------- metric tons --	W	W	5,308	6	4,592	5
Copper (recoverable content of ores, etc-----------------do.---	1,243,638	2,261,833	r/1,416,928	r/3,764,353	1,497,458	4,322,922
Gold (recoverable content of ores, etc.) ---------- kilograms --	153,870	2,216,027	200,914	2,831,281	265,541	3,266,210
Iron ore (includes byproduct material) -- thousand metric tons --	47,983	1,503,087	57,113	1,716,661	58,299	1,901,772
Iron oxide pigments, crude --------------------- metric tons --	38,803	3,598	39,711	3,815	45,575	3,645
Lead (recoverable content of ores, etc.)------------------do.---	311,381	246,720	384,983	315,222	410,915	356,477
Magnesium metal --do.---	124,396	381,914	141,983	469,767	152,066	508,668
Molybdenum (content of ore and concentrate) -- thousand pounds --	69,868	179,286	r/101,283	r/271,039	139,124	421,427
Nickel (content of ore and concentrate) ---------- short tons --	--	--	--	--	382	2,600
Silver (recoverable content of ores, etc.) ------- metric tons --	1,241	279,675	1,661	349,339	2,007	354,973
Zinc (recoverable content of ores, etc.)------------------do.---	216,327	199,924	244,314	324,249	275,883	499,103
Combined value of antimony (1986-87), manganiferous ore (5 to 35% Mn), mercury, platinum-group metals, rare-earth concentrates, tin, titanium concentrates (ilmenite and rutile), tungsten, vanadium, zircon concentrates, and values indicated by symbol W --	XX	139,596	XX	159,409	XX	308,262
Total2/ --	XX	7,423,000	XX	10,216,000	XX	11,959,000
INDUSTRIAL MINERALS (EXCEPT FUELS)						
Abrasives3/ ------------------------------------ metric tons --	11,587	957	13,313	1,183	1,257	189
Asbestos --do.---	50,600	17,198	W	W	--	--
Barite ----------------------------- thousand metric tons --	406	15,810	404	15,512	290	12,625
Boron minerals ------------------------------- metric tons --	1,256,452	475,092	1,149,404	429,667	1,114,007	429,806
Bromine5/ ----------------------------- thousand kilograms --	152,000	107,000	163,000	144,000	W	W
Cement:						
Masonry ---------------------------- thousand short tons --	3,680	259,926	3,574	243,941	3,329	229,441
Portland ---do.---	74,868	3,646,561	74,074	3,575,906	74,202	3,592,255
Clays ------------------------------ thousand metric tons --	43,234	1,202,284	44,515	1,400,820	44,000	1,500,000
Diatomite ---------------------------- thousand short tons --	596,928	134,239	628,680	143,774	617,164	136,754
Emery --- short tons --	1,945	W	W	W	--	--
Feldspar ---do.---	720,000	26,100	715,484	28,082	721,256	28,029
Fluorspar ------------------------------------ metric tons --	r/63,500	W	r/63,500	W	W	W
Garnet (abrasive) ---------------------------------------do.---	38,353	4,350	42,506	4,707	42,604	4,408
Gem stones --	NA	21,389	NA	43,508	NA	42,901
Gypsum ----------------------------- thousand short tons --	15,612	106,977	16,390	109,205	17,624	128,448
Helium:						
Crude ------------------------------- million cubic feet --	730	16,068	W	W	W	W
Grade-A ---do.---	2,230	82,540	2,574	95,238	2,879	106,523
Iodine ------------------------------------- metric tons --	W	W	1,015,210	W	1,505,714	23,947
Lime ------------------------------ thousand short tons --	15,733	786,125	r/17,052	r/817,893	17,152	852,113
Mica (scrap) ------------------------ thousand metric tons --	146	8,201	130	6,793	119	6,273
Peat ------------------------------ thousand short tons --	958	21,020	r/908	r/20,320	769	17,636

[redacted]

Table 1.--Nonfuel mineral production1/ in the United States

Mineral	1987		1988		1989	
	QUANTITY	VALUE (thousands)	QUANTITY	VALUE (thousands)	QUANTITY	VALUE (thousands)
INDUSTRIAL MINERALS (EXCEPT FUELS) (continued)						
Perlite ---do.	533	16,494	576	17,652	601	16,301
Phosphate rock --- thousand metric tons	40,954	793,280	45,389	887,809	49,817	1,082,797
Potassium salts (K20 equivalent) ---do.	1,485	195,700	1,427	240,300	1,536	271,515
Pumice ---do.	356	4,493	353	4,129	424	8,213
Salt --- thousand short tons	36,493	684,170	37,997	680,174	38,356	776,846
Sand and gravel:						
Construction ---do.	e/895,200	e/3,002,500	923,400	3,126,000	e/897,300	e/3,249,000
Industrial ---do.	28,010	364,100	28,480	388,000	29,205	410,200
Sodium carbonate (natural) ---do.	8,891	593,685	9,632	644,973	9,915	764,146
Sodium sulfate (natural) ---do.	382	33,086	398	31,377	375	31,104
Stone:4/						
Crushed --- short tons	1,200,100,000	5,248,600	e/1,247,800,000	e/5,558,000	1,213,431,715	5,325,762
Dimension ---do.	1,183,849	190,153	e/1,189,333	e/196,289	1,206,995	208,311
Sulfur, Frasch process --- thousand metric tons	3,610	386,834	4,341	430,814	3,780	378,712
Talc and pyrophyllite --- short tons	1,281,789	28,872	r/1,359,937	r/31,185	1,381,335	31,264
Tripoli --- metric tons	104,259	975	99,928	864	105,229	2,534
Vermiculite --- short tons	302,926	33,105	303,544	33,948	293,320	33,550
Combined value of aplite, calcium chloride (natural), graphite (natural, 1988-89), kyanite, lithium minerals, magnesite, magnesium compounds, marl (greensand), olivine, pyrites, staurolite, wollastonite, and values indicated by symbol W	XX	r/394,707	XX	r/451,280	XX	667,010
Total2/	XX	18,903,000	XX	19,352,000	XX	20,369,000
Grand total2/	XX	26,326,000	XX	29,568,000	XX	32,328,000

e/Estimated. r/Revised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" figure.
XX Not applicable.
1/Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
2/Data may not add to totals shown because of independent rounding.
3/Grindstones, pulpstones, and sharpening stones; excludes mill liners and grinding pebbles.
4/Excludes abrasive stone and bituminous limestone and sandstone; all included elsewhere in table.

SOURCE: U.S. Bureau of Mines

Form MMS-2014 Revised 12/82
Previous editions are obsolete and may not be used

U.S. DEPARTMENT OF THE INTERIOR
Minerals Management Service—Royalty Management Program

REPORT OF SALES AND ROYALTY REMITTANCE

OIL AND GAS

OMB 1010-0022
(Exp. March 31, 1986)

Page ____ of ____

For MMS Use Only

REPORT MO./YR. ⌊_⌊_⌊_⌊_⌊_⌋

1 PAYOR'S NAME ____________________
ADDRESS ____________________
CITY/STATE ____________________ ZIP ________

2 PAYOR CODE ⌊_⌊_⌊_⌊_⌊_⌊_⌋

3 FEDERAL ☐ OR INDIAN ☐

3a PAYOR-ASSIGNED DOCUMENT NUMBER ☐

4	5 RESERVED FOR PREPARER'S USE	6 ACCOUNTING IDENTIFICATION (AID) NUMBER	7 PRODUCT CODE	8 REG PRICE CODE	9 SELLING ARR CODE	10 SALES MONTH/YEAR	11 TRANS CODE	12 ADJ REAS CODE	13 SALES QUANTITY	14 QUALITY MEASUREMENT	15 CALC METH	16 SALES VALUE	17 ROYALTY QUANTITY	18 ROYALTY VALUE	19 PAYMENT METHOD CODE
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20 PAGE TOTAL ________

21 REPORT TOTAL ________

REPORT CONTROL BLOCK

	Payment	(Method Code)	Amount
22	Checks to MMS	(01)	
23	Payments to Others	(02)	
24	EFT to MMS	(03)	
25	Royalty-In-Kind	(04)	
26	Checks to MMS for BIA	(05)	
27	EFT to BIA	(06)	
28	Payments to Lockboxes	(07)	
29	TOTAL OF ITEMS 22–28		

WARNING: PUBLIC LAW 97-451 PROVIDES CIVIL AND CRIMINAL PENALTIES FOR FALSE OR INACCURATE REPORTING. Failure to report as required under the terms of the lease, permit, or contract may result in suspension of operations or other enforcement actions.

The Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.) requires us to inform you that this information is being collected to document details of royalty payments on sales of oil and gas from leases on Federal and Indian lands. MMS will use this information to maintain and audit lease accounts.

I have read and examined the statements in the report and agree they are accurate and complete

30 ____________________
Name (typed or printed) and authorized signature — Date

31 ____________________
Name of preparer — Telephone

INSTRUCTIONS

REPORT OF SALES AND ROYALTY REMITTANCE

(Form MMS-2014 Revised 12/82)

Please refer to the Payor Handbook for detailed instructions and for the codes you will use to complete some of the items, or contact the Minerals Management Service (MMS) Royalty Management Program for further information.

REPORT MO./YR.—Enter the month and year you prepare the report (for example, 0 4 8 2).

1. PAYOR'S NAME and ADDRESS—Enter the name and address of the company or person remitting the payment.
2. PAYOR CODE—Enter the 5-digit code number assigned to the Payor (Item 1) by MMS. Contact MMS if you do not know your Payor Code.
3. FEDERAL or INDIAN—Check one of the boxes to indicate whether you are reporting Federal or Indian royalty. If you need to report both, use separate forms and make separate payments.

3a. PAYOR-ASSIGNED DOCUMENT NUMBER—Use this space for your own record number if you wish.

4. LINE number—Use separate lines to report the royalty remittance for each different product, price code, selling arrangement, etc. for each Accounting Identification (AID) number. Also use separate lines to report different transactions or adjustments, rental or minimum royalty payments, etc., or to report royalty taken in kind.
5. RESERVED FOR PREPARER'S USE—Use this space, if you wish, for your own identification of a line item.
6. ACCOUNTING IDENTIFICATION (AID) NUMBER—Enter the 13-digit AID code number assigned by MMS for a lease or property. For unit or communitization agreement sales, royalty payments must be allocated to an AID number. Contact MMS if you do not have an AID number for the lease transactions you are reporting.
7. PRODUCT CODE—Enter the appropriate code from the list in the Payor Handbook.
8. REGULATED PRICE CODE—Enter the code from the Payor Handbook for the appropriate Natural Gas Policy Act (NGPA) price category.
9. SELLING ARRANGEMENT CODE—Enter the code provided by MMS in your Payor's Confirmation Report. Contact MMS if you do not have a Selling Arrangement Code for the transaction you are reporting.
10. SALES MONTH/YEAR—Enter the month and year the sales were made.
11. TRANSACTION CODE—Enter the appropriate code from the Payor Handbook for the line item.
12. ADJUSTMENT REASON CODE—Enter the appropriate code from the Payor Handbook to identify an adjustment to a previous report and the reason for the adjustment.
13. SALES QUANTITY—Enter the amount of the product sold, in terms of barrels of oil, MCF of gas, or gallons of plant products.
14. QUALITY MEASUREMENT—Enter average Btu's per MCF for gas or average gravity per barrel for oil or plant products.
15. CALCULATION METHOD—Enter the code from the Payor Handbook that identifies the method you used to calculate gas royalties.
16. SALES VALUE—Enter the total value, from which the royalty will be computed, of the Sales Quantity (Item 13).
17. ROYALTY QUANTITY—Multiply the Sales Quantity times the royalty rate stated in your lease, and enter the result (as barrels, MCF, or gallons).
18. ROYALTY VALUE—Multiply the Sales Value (Item 16) times the royalty rate and enter the result.
19. PAYMENT METHOD CODE—Enter the code from the Payor Handbook that identifies how you are paying the royalty for this line item.
20. PAGE TOTAL—Add the total royalties in Item 18 for each page.
21. REPORT TOTAL—Add the Page Totals of all the pages of the report and enter the result on Page 1 of the completed report.

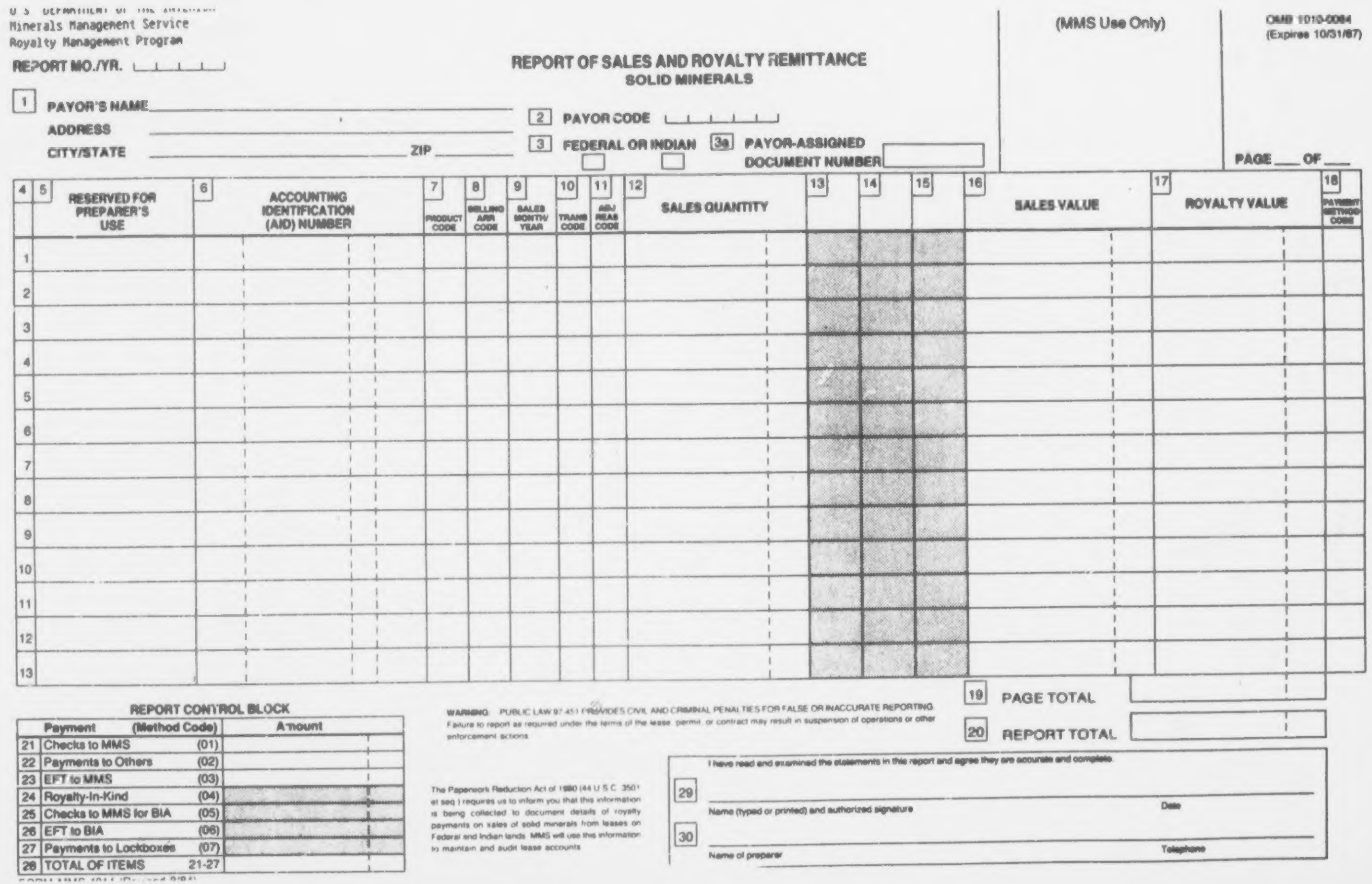
Fill in the REPORT CONTROL BLOCK only on Page 1 of the report. Numbers in parentheses are Payment Method Codes (Item 19).

22. CHECKS TO MMS—Enter the total amount of the check for Federal royalties submitted with this report.
23. PAYMENTS TO OTHERS—Enter the total rentals and royalties reported on this form but paid directly to Indian Tribes or allottees, to Alaska Natives, etc.
24. ELECTRONIC FUNDS TRANSFER (EFT) TO MMS—Enter the total amount paid by electronic transfer of funds directly from Payor's bank to the Minerals Management Service's Treasury account.
25. ROYALTY-IN-KIND—Enter the total royalty value that will be paid by the contractor who takes the product in kind.
26. CHECKS TO MMS for BIA—Enter the total amount of the checks submitted to MMS with this report to be paid to specific Indian Tribes or allottees.
27. ELECTRONIC FUNDS TRANSFER (EFT) TO BIA—Enter the total amount paid by electronic transfer of funds directly from Payor's bank to the Bureau of Indian Affairs' Treasury account.
28. PAYMENTS TO LOCKBOXES—Enter the total amounts paid directly to an Indian Tribe's or allottee's account at a bank.
29. TOTAL OF ITEMS 22-28—Enter the sum of the above, which must agree with the Report Total (Item 21).
30. NAME (TYPED OR PRINTED) AND AUTHORIZED SIGNATURE; DATE—Enter the legible name and provide the signature of a person authorized by the Payor to certify the accuracy of the report, on Page 1. Enter the date signed.
31. NAME OF PREPARER; TELEPHONE—Enter the name and telephone number of the person who prepared the report, on Page 1.

Mail completed report and remittance to:

Minerals Management Service
Royalty Management Program
P.O. Box 5810, T.A.
Denver, CO 80217

For MMS Use Only



U S DEPARTMENT OF THE INTERIOR
Minerals Management Service
Royalty Management Program

REPORT MO./YR. ⎵⎵⎵⎵

(MMS Use Only)

OMB 1010-0064
(Expires 10/31/87)

REPORT OF SALES AND ROYALTY REMITTANCE
SOLID MINERALS

1 PAYOR'S NAME ____________________
ADDRESS ____________________
CITY/STATE ____________ ZIP ________

2 PAYOR CODE ⎵⎵⎵⎵⎵⎵

3 FEDERAL OR INDIAN ☐ ☐

3a PAYOR-ASSIGNED DOCUMENT NUMBER ☐

PAGE ___ OF ___

4	5 RESERVED FOR PREPARER'S USE	6 ACCOUNTING IDENTIFICATION (AID) NUMBER	7 PRODUCT CODE	8 SELLING ARR CODE	9 SALES MONTH/ YEAR	10 TRANS CODE	11 ADJ REAS CODE	12 SALES QUANTITY	13	14	15	16 SALES VALUE	17 ROYALTY VALUE	18 PAYMENT METHOD CODE
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19 PAGE TOTAL ☐

20 REPORT TOTAL ☐

REPORT CONTROL BLOCK

	Payment	(Method Code)	Amount
21	Checks to MMS	(01)	
22	Payments to Others	(02)	
23	EFT to MMS	(03)	
24	Royalty-In-Kind	(04)	
25	Checks to MMS for BIA	(05)	
26	EFT to BIA	(06)	
27	Payments to Lockboxes	(07)	
28	TOTAL OF ITEMS	21-27	

WARNING: PUBLIC LAW 97-451 PROVIDES CIVIL AND CRIMINAL PENALTIES FOR FALSE OR INACCURATE REPORTING. Failure to report as required under the terms of the lease, permit, or contract may result in suspension of operations or other enforcement actions.

The Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.) requires us to inform you that this information is being collected to document details of royalty payments on sales of solid minerals from leases on Federal and Indian lands. MMS will use this information to maintain and audit lease accounts.

I have read and examined the statements in this report and agree they are accurate and complete.

29 ____________________
Name (typed or printed) and authorized signature
Date

30 ____________________
Name of preparer
Telephone

INSTRUCTIONS

REPORT OF SALES AND ROYALTY REMITTANCE

(Form MMS-4014 Revised 8/84)

Please refer to the Payor Handbook-Solid Minerals (Payor Handbook) for more detailed instructions and the codes you will use to complete line items. Contact the Minerals Management Service (MMS) Royalty Management Program's Solid Minerals Section for further information.

REPORT MO./YR.—Enter the month and year you prepare the report (for example, "0484" for April 1984).

1. PAYOR'S NAME AND ADDRESS—Enter the name and address of the company or person remitting the payment.
2. PAYOR CODE—Enter the 5-digit code number beginning with "M" assigned to the Payor by MMS. Contact MMS if you do not know your Payor Code.
3. FEDERAL or INDIAN—Check one of the boxes to indicate whether you are reporting Federal or Indian royalty. If you need to report both, use separate forms and make separate payments.

3a. PAYOR-ASSIGNED DOCUMENT NUMBER—Use this 6-digit, alphanumeric field for your own record number if you wish. However, you must use this field when remitting by electronic funds transfer (EFT).

4. LINE NUMBER—Use separate lines to report the royalty remittance for each combination of Accounting Identification Number/Product/Selling Arrangement. Use separate lines to report different transactions or adjustments, rental or minimum royalty payments, etc.
5. RESERVED FOR PREPARER'S USE—Use this space, if you wish, for your own identification of a line item.
6. ACCOUNTING IDENTIFICATION (AID) NUMBER—Enter the 13-digit AID number assigned by MMS for royalty transactions and royalty adjustments. Enter zeros for the last three digits on rental, minimum royalty, advance royalty, and recoupments against such transactions.
7. PRODUCT CODE—Enter the appropriate code from the list in the Payor Handbook (Appendix C).
8. SELLING ARRANGEMENT CODE—Enter the code provided by MMS in your Payor Confirmation Letter.
9. SALES MONTH/YEAR—Enter the month and year of the royalty transaction, i.e., when the sales occurred or production took place, as provided by the lease terms or regulations, as applicable.
10. TRANSACTION CODE—Enter the appropriate code from the Payor Handbook (Appendix A) for each line item.
11. ADJUSTMENT REASON CODE—Enter the appropriate code from the Payor Handbook (Appendix B) to identify the reason for an adjustment to a previous report.
12. SALES QUANTITY—Enter the amount of product sold or produced for the royalty transaction consistent with the lease terms or regulations, as applicable.
13. (Reserved for future use).
14. (Reserved for future use).
15. (Reserved for future use)
16. SALES VALUE—Enter the total value of the Sales Quantity (Item 12).
17. ROYALTY VALUE—Multiply the royalty rate times the sales value (Item 16) or production quantity if royalty is based on tonnage, etc.
18. PAYMENT METHOD CODE—Enter the code from the Payor Handbook (Appendix D) that identifies how you are paying the royalty for this line item.
19. PAGE TOTAL—Add the total royalties in Item 17 for each page.
20. REPORT TOTAL—Add the Page Totals of all pages in the report and enter the result on Page 1 of the completed report.

Fill in the REPORT CONTROL BLOCK only on Page 1 of the report. Numbers in parentheses are Payment Method Codes (Item 18).

21. CHECKS TO MMS—Enter the total amount of the check for Federal royalties submitted with this report.
22. PAYMENTS TO OTHERS—Enter the total rentals and royalties reported on this form but paid directly to Indian Tribes or allottees, to Alaska Natives, etc.
23. EFT to MMS—Enter the total amount paid by electronic funds transfer directly from Payor's bank to the Minerals Management Service's Treasury account.
24. (Reserved for future use).
25. (Reserved for future use).
26. (Reserved for future use).
27. (Reserved for future use).
28. TOTAL OF ITEMS 21-27—Enter the sum of the above, which must agree with the Report Total (Item 20).
29. NAME (TYPED OR PRINTED) AND AUTHORIZED SIGNATURE; DATE—Enter the legible name and provide the signature of a person authorized by the Payor to certify the accuracy of the report. Enter the date signed. This information should be entered only on Page 1 of a multipage report.
30. NAME OF PREPARER; TELEPHONE—Legibly enter the name and telephone number of the person who prepared the report on Page 1 only.

Mail completed report and remittance to:

Minerals Management Service
Royalty Management Program
P.O. Box 5810
Denver, CO 80217

(Payor Number must be shown on check; see Payor Handbook for additional instructions.)

For MMS Use Only

GPO 849-084

APPENDIX II

Additional Material Submitted for the Record

THE MINING LAW: TIME TO PULL THE PLUG

(By David Alberswerth)

The General Mining Law of 1872 has been abused, but even without that abuse, it has many deficiencies. Individuals whose primary interest is not in mineral development and production have attempted, under the guise of that law, to obtain use of public lands for various other purposes. The 1872 law offers no means by which the Government can effectively control environmental impacts. Other deficiencies include the fact that claims long since dormant remain as clouds-on-title, and land managers do not know where claims are located.

from "One Third the Nation's Land—A Report to the President and to the Congress by the Public Land Law Review Commission", June, 1970

The Mining Law has "created a veritable paradise for the blackmailer and scoundrel. The law has . . . offered and occasionally paid premiums to every disreputable individual who takes advantage of their possibilities—and there are many unscrupulous people, even in the West. It is easy money, as any miner will tell you, to make spurious locations over valuable claims and compel compromises by the uncertainty and expense of litigation."

from remarks by former Senator Charles S. Thomas of Colorado, 1916, quoted in Leshy, *The Mining Law, A Study in Perpetual Motion* (Resources for the Future, 1987)

Why should we pull the plug on the 1872 Mining Law, this relic of America's pioneer days? In short: it is incompatible with the purposes and values we place on our public lands and national forests today; it has been abused throughout its existence and up to the present time by those more interested in obtaining free or virtually free use of public lands for non-mining purposes; it contains no environmental protection requirements; and it fails to provide for a fair return to the public for minerals owned by the public.

Under it, public lands open to the operation of the Law may be entered by claimants, who may assume control of 20 acre claims for the ostensible purpose of mineral exploration and development. In order to perpetuate his claim, the claimant need only assert that he has performed $100 worth of work per year towards developing the minerals alleged to occur within the claim. Minerals subject to the Law may in fact be removed from the claim with no royalties being paid the government for the value of them. The claimant may also obtain a "patent" to the claim, in effect acquire fee simple title to it, for as low as $2.50 per acre, cheaper than a six pack of beer. Persons who obtain patents are often not interested in mining but instead in obtaining public lands at a giveaway price. Mine reclamation requirements imposed on hard rock operations are, at best, rudimentary. Until August of this year, BLM reclamation bonding requirements were discretionary, and had not been imposed on virtually any hard rock mining operations by the Bureau (although many states impose reclamation bonds). Even so, under the BLM's current bonding policy, bonds required are not sufficient to cover the costs of reclamation. For operations on BLM lands that affect less than five acres, no bonds are required at all. In fact, for such operations, no plans of operations are required. The operator need only inform the BLM of his intent to operate. The Law contains no environmental protection requirements per se. Although arguably a number of environmental protection statutes apply to hard rock operations, the agency with the primary duty for administering the statute—the Bureau of Land Management—traditionally has shown great deference to the industry and the 1872 Law, usually to the detriment of the environment. That is because of the Law's implicit mandate that mining is the dominant use of public lands. Many of the Law's concepts and terminology are vague and archaic, providing for ongoing legal conflicts between rival parties of interest to mineral claims established under it.

But the most intriguing question regarding the growing debate surrounding the General Mining Law of 1872 is not why this antiquated law should be changed or repealed, but why in the world does this senile statutory appendage from a bygone era find any support at all among legitimate mining and exploration companies? That mining law attorneys support retention of the current Law is entirely understandable. After all, for 118 years it has provided a mother lode of litigation opportunities and riches for lawyers representing clients disputing or trying to exploit its inherent vagaries, contradictions, gaps and peculiarities. There have been some 200 U.S. Supreme Court case alone relating to the Law, and lawsuits at lower federal and state courts must by this time number in the thousands. It would not be surprising if more lawyers have struck it rich under the 1872 Law than have miners. Moreover, speculators and others on the look-out for a quick buck, a vacation home, a place to cultivate illegal drugs, or a real estate deal have a vital interest in preserving the status quo. They are part of a long and lucrative tradition whereby the Law's generous invitation has been exploited for a host of non-mining commercial enterprises, money-making schemes, summer cabins in a sylvan setting, or outright extortion of cash from either legitimate mining companies or the government.

Why should mining companies support changing the Law? Well, for starters there are the Law's modern irrelevancies. Let's take the distinction between "lode" and "placer" claims. Under the Law, a lode claim follows a "vein" or "lode", while a placer claim must generally conform to public land surveys. As Professor Leshy points out in his superb study of the Mining Law (*The Mining Law—A Study in perpetual Motion*, Resources For the Future, 1987), lode claims enable the locator to follow deposits outside the boundaries of the claim while placer claims do not. And to designate a lode as a placer claim can result in the attempted location becoming null and void. Now, a good mining attorney could write an interesting treatise or two about the important and vital legal distinctions between these two concepts. But, are such legal distinctions of any relevance or significance whatsoever to a mining engineer or an exploration geologist surveying a diffuse and low-grade gold-bearing ore body in Nevada's Carlin Trend or elsewhere, where these quaint legal distinctions have no relevance to the geologic realities under consideration? Doubtful. Perhaps the distinction between lode and placer claims was useful when our nation was young and thousands of miners were combing the West's mountains, rivers, streams and plains looking for easily identifiable surface or near-surface deposits. But not today.

And what is the purpose of the requirement that if a claimant wishes to avoid confusion regarding the irrelevant distinction between "lode" and "placer" deposits, he must file for a placer claim first or risk abandonment of the lode claim? Litigation, anyone?

The *pedis possessio* invention is another major problem for contemporary operators, particularly for companies with serious exploration programs. On the other hand, it is a boon to speculators more interested in sitting on a potentially valuable mining claim in hopes that a legitimate company will buy them off. Is it really in the interests of a legitimate mineral exploration company with potential hot prospects to worry about keeping its multitude of 20-acre claims physically occupied year-round in order to assure that no one else will top-file over them in hopes of extorting a monetary settlement in lieu of costly litigation? Is this an indispensable attribute of mineral exploration and development in the latter part of the twentieth century? Is it really in the interests of a modern minerals industry?

Moving on from the ridiculous to the farcical, most students of the Law are familiar with the horror stories of mining law abuse: the claims patented for $2.50 an acre that are now being sold for vacation home developments, the junkyards, the houses of prostitution, and Ralph Cameron's tourist facilities at the Grand Canyon. Mining Law aficionados would have us believe that such incidents fall into one or more of the following categories: (a) they happened in the misty past when the West was young; (b) they are odd anomalies in an otherwise heroic march of progress facilitated by the near-perfect, almost mystical, workings of the Law ("a Law that has served this nation well for almost 120 years"); (c) they don't happen anymore. In fact, the tradition of fraud and waste began in the Old West and continues right up to the present, and is the inevitable consequence of the Law's glaring deficiencies.

Numerous government reports stretching back into the 1930s have documented the most common form of abuse: claims being located and patented by persons who have no interest in mining. Reports by the Forest Service, Council on Environmental Quality and the U.S. General Accounting Office (GAO) have all documented this persistent phenomena. The most recent report of this nature was published by the GAO in March of 1989. The findings were not surprising to those familiar with past GAO investigations into this issue: (a) the $100 annual assessment work requirement does not promote development, is difficult for the federal land management agencies to enforce, and leads to needless environmental disturbance, (b) and valuable federal lands are being sold for nominal amounts of money under the guise of the 1872 Mining Law's patenting provisions to persons who have no intention of mining. The GAO's conclusion, not surprisingly, was that Congress needs to change the law to stop the continuing abuses under it.

Several case histories were cited by the GAO. A 160 acre parcel was patented near Keystone, Colorado, a ski resort, in 1983 for $400. The land was for sale in 1989 as part of a real estate development for $11,000 per acre. No mining had occurred on it. Several claims recently patented for sand and gravel (yes indeed, you can still claim that you have found an "uncommon variety" of sand or gravel, seek a patent, and probably get it) within residential areas of suburban Phoenix, Arizona. One claim, a 15 acre sand and gravel operation patented in 1985 for $38 was estimated to be worth $272,000. Another, a granite claim patented in 1987 for $47, was estimated by GAO to be worth up to $3.8 million for its real estate value. The GAO cited other examples of claims for sand and gravel being patented on the outskirts of Las Vegas. Wise investments.

The author's personal favorite abuse story is the saga of the so-called "Fox" claims to an "uncommon variety" of sand in the Oregon Dunes National Recreation Area (ODNRA) an incident that has become known in Oregon as "sandscam". The ODNRA is located on Oregon's spectacular southwestern coast, and is a popular destination for tourists from all over the country. Oregonians were surprised one day last year when the BLM announced its intention of issuing a patent for an "uncommon variety" of sand on claims covering over 700 acres within the heart of the ODNRA. How could this be? Hadn't the Material Disposal Act of 1947 and the Common Varieties Act of 1955 effectively precluded location of claims for sand and gravel? Six of the state's seven Congressmen wrote to the Secretary of the Interior requesting that the patent not be issued. After much public angst on the part of the Congressional delegation, the media, the land management agencies and environmentalists regarding the implications of an ongoing sand quarrying operation or other commercial enterprise in the heart of one of Oregon's most popular scenic natural treasures, the claimants let it be known that they would be open to trading their claims for suitable lands elsewhere—if the price were right. Thereupon the Forest Service and BLM undertook a search of the local public domain to find some "suitable habitat" for the claimants. After identifying several possible tracts to the claimants in close proximity to the Recreation Area but outside its boundaries, the claimants promptly filed claims on those tracts, since they were not withdrawn from mineral entry. Not surprisingly, there is also a dispute between the government and the claimants over the value of the claims within the Recreation Area. Although the Forest Service has expressed its willingness to assign a value of $500 to $700 per acre for the claims (remember, the claimants at most will have to pay $5.00 per acre for their patents), this value is apparently not high enough for the claimants. Sandscam.

Now the operational history of the Mining Law raises a number of important questions. Is it really in the nation's best interests to still be in the business of disposing of valuable real estate, let alone valuable mineralized lands, for between $2.50 and $5.00 per acre? Doesn't the opportunity of acquiring title to mineralized lands for, say, what one might allege to be "uncommon varieties" of sand and gravel (or, perhaps, bentonite) leave open the possibility of fraud? Should legitimate mining companies have to pay off speculators who assert claims to mineral deposits which they have no intention of ever developing but who have established a claim by virtue of their alleged compliance with the $100 per year assessment work requirement? Should the government be constantly put in the position of first conveying title to valuable public lands for nominal amounts of money, and then buying them back for extraordinary amounts of money to protect other natural resources, as in the case of the Oregon Dunes?

There are a number of other problems with the Law and its current implementation that leave environmentalists aghast. Currently, the BLM does not require hard rock operators to post reclamation bonds for mining operations on public lands that are adequate to cover the costs of reclaiming damaged lands, if the operator defaults. This, in fact is the BLM's new, improved bonding policy. The previous policy (in effect through July of this year) did not require most operators to post a reclamation bond at all. For operations on public lands of less than five acres, reclamation bonds are never required by BLM (however, the states may require them, and the Forest Service requires mines with "plans of operations"—only about 40% of all mining operations on national forests—to post bonds). In fact, all a five-acre operator need do to start digging is to notify the BLM that he intends to do so—no approval process in any real sense of the word is required. For larger operations, though a "plan of operations" is required, the BLM has decided that so long as the planned operation does not pose a threat of "undue and unnecessary degradation" to the environment, the operation can go forward. There is no meaningful enforcement mechanism to assure compliance with "plans of operations", no prospects of fines being levied if violations occur. "Undue and unnecessary degradation" is defined in the BLM's regulations as follows: ". . . surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations and uses outside the area of operations. . . ." In other words, "business as usual" is all that the BLM expects: if the operator says the environmental degradation he is proposing to carry out is "due and necessary", it's O.K. with the BLM.

This extraordinary measure of latitude given the mining industry by the "Bureau of Livestock and Mining", because it is deeply embedded in decades of agency tradition, remains as accessible to the mining industry as the gold at Sutter's Mill was to James Marshall. For example, it allows for the permitting of a 55-acre open pit gold mine in Nevada's Stillwater Wilderness Study Area (WSA) on the basis of a 3½ page "environmental assessment" that found "no significant impact" to the wilderness character of the WSA as a consequence of the open-pit heap leach operation within it, to wit: "The proposed action exhibits reasonable and customary gold/silver mining techniques and will not cause unnecessary and undue degradation of public lands." It's just "business as usual", no problem with degrading the wilderness. Though some may argue that current law provides the management agencies with a great deal of leverage to prevent environmental degradation associated with mining operations, in fact the agencies continue to interpret their authority as greatly limited by the continuing specter of the 1872 Mining Law.

But there are specters haunting the mining industry, as well. They are, I believe, why the industry trade associations are so vehement in their defense of a statute that is at best irrelevant to the needs of a modern mining industry and at worst inimical to it. It includes the specter of being required to act in a socially and environmentally responsible manner. It is being required to internalize the external environmental costs of exploiting publicly-owned mineral resources, and possibly paying fair market value for the privilege of benefiting financially from the extraction of these minerals. It is encountering situations where other public values may outweigh the importance of mineral development in a given area. It is the possibility of no longer dominating the public lands, but instead being considered only one of many legitimate uses of those lands, and in some instances having to be take a back seat to other resource values.

To its defenders, the Mining Law is a shibboleth. But in many respects the Law was obsolete even as it was passed. It was created during the heyday of the wholesale disposal of the western public domain in order to facilitate America's "Manifest Destiny" to rule the continent from sea to shining sea, an objective today that has long since been accomplished. Even in 1872, most of the easily identifiable ore deposits had already been exploited, and a new attitude toward the public domain—that there may be greater public purposes to be served by protecting public lands than by disposing of them—had found expression in the same year by Congress' creation of Yellowstone National Park.

According to the great western historian Frederick Jackson Turner, by 1890 the frontier had closed. Public lands were being withdrawn from disposal and exploitation as a consequence of the Forest Reserve Act of 1891. A conservation movement had arisen by 1892 with the founding of the Sierra Club. By the turn of the century, the great westward population migration had slowed and ebbed, with many states witnessing large outmigrations of settlers who had failed to establish homesteads in the West's harsh climates. The nation's ongoing population growth was in its cities, not in the wild West. The disposal laws were increasingly irrelevant to the goal of accomplishing America's Manifest Destiny. By the middle part of the twentieth century the nation's views of the status of its remaining western public domain lands had gradually evolved into a dramatically different vision of their purposes. Recognizing this reality, but cognizant of the fact that hundreds of disposal laws remained on the books, the Public Land Law Review Commission in 1970 recommended that Congress codify the new reality—that is, that the public lands and resources should remain in public ownership. Congress agreed with this recommendation and in 1976 passed the Federal Land Policy and Management Act (FLPMA) which declares "it is the policy of the United States that . . . the public lands be retained in Federal ownership."

The Commission also recommended significant changes in the 1872 Law (but not outright repeal) Only one recommendation was approved by Congress—a requirement that all existing claims be recorded with the BLM.

Today, Congress' failure in 1976 to implement many of the modest reforms recommended by the Commission has resulted in a growing concern regarding the problems posed by the continued tenure in the Federal codes of this relic from our nation's early history. The likelihood of reform legislation moving through Congress advances with the increasing bemusement and outrage regarding "sandscams" and the growing awareness that public lands, some perhaps containing millions of dollars worth of valuable minerals, are being sold for less per acre than the cost of a six-pack of Miller Lite.

Although a number of reforms advocated by the environmental community have traditionally been met with stubborn opposition by the mining industry, it is my belief that reforms can be crafted that provide advantages to both a modern hard rock minerals industry, and to those concerned about the impact of mining activities on the environment. For example, one sacred tenet of the current Law to all elements of the minerals industry—the right of "self-initiation"—can be preserved in a reform "package". In essence, "self-initiation" is the ability to enter open public domain lands to explore for minerals, with an entitlement to any minerals found.

Many environmental advocates of reform in the past have advocated a leasing system for public hard rock minerals analogous to the Mineral Leasing Act. Such proposals have been an anathema to the mining industry, which argues that the nature of hard rock mineral occurrence and the economics of hard rock mining mandate that the "self-initiation" principle protected by the 1872 Law be preserved. Despite the environmental community's past advocacy of a leasing system for hard rock minerals, the experience of many environmentalists with the government's leasing programs as applied to oil, gas and coal is convincing evidence that a leasing regime per se provides no guarantees against environmentally abusive mineral exploration and extraction practices. Instead, environmental protection is really dependent upon adherence to specific land use planning and operational requirements designed to provide environmental protection, a regulatory regime not necessarily dependent upon the mechanisms used to convey exploration and development rights to federal minerals. As a consequence of this experience, it is possible to address their environmental concerns within a basic framework of reforms that also preserves the essential principle of "self-initiation" for the industry. (I should hasten to add that this is not a universal view within the environmental community.) However, the preservation of the "self-initiation" principle would have to be accompanied by protection afforded environmental values and resources, a prospect resisted by much of the mining industry.

Another aspect of reform that could benefit the industry and which could be supported by many environmentalists would be to dispense with the current *pedis possessio* doctrine with the substitution of a framework that provides legitimate mining companies with improved security of tenure to mining claims. Such a reform could assure legitimate mining companies that they will not be harassed by speculative claim locators and other squatters on the public domain. This would be accomplished by abandoning the current $100 per claim annual "assessment work" requirement—a value imposed in 1872 and not changed since. The value of required yearly assessment work would be increased, and the definition of qualifying assessment work activities expanded (ex., aerial surveying, environmental studies, etc.). Payments in lieu of actual work would be allowed for a certain of period of time. These payments would be set at a level high enough to discourage the speculative holding of mineral claims, and commensurate with the value of assessment work required. Actual physical occupancy of claims would be unnecessary. Such reforms would help weed out nuisance claims, which are troublesome for the legitimate mining industry, the land management agencies and environmentalists, and guarantee that only those operators seriously interested in mineral exploration and development would have access and tenure to their claims.

A final example of the type of reform that both environmentalists and industry could support is abandonment of the patenting provisions of current law. The current patenting provision is undoubtedly the most offensive aspect of the 1872 Law to the interested public, the provision most blatantly out-of-step with the retention philosophy of our public land laws, and the one most frequently subject to well-deserved derision in the popular media. Many modern operations do not even bother to patent their claims, indicating to environmentalists the complete irrelevancy of patenting to any legitimate mining industry need. Instead, the current patenting provisions are an invitation to those who wish to acquire fee simple title to public lands at a low, low price for recreational use or commercial real estate developments, a not infrequent or unusual occurance. For example, a 1974 General Accounting Office investigation of 93 patents revealed that 80 percent of them had never been mined.

The one legitimate rationale for patenting held out by the mining industry is that, in the absence of other provisions of current law that protect security of tenure, patenting is the only means of providing it. Adoption of the diligent development reforms discussed above, however, will obviate the *pedis possessio* doctrine, and the need for patenting as a means of securing tenure.

Despite these examples of reforms that are mutually beneficial to the mining industry and the environmental community, there are a host of other issues where, as a foreign service officer might articulate it, "consensus would be very difficult to achieve." For example, the insistence by the mining industry that they are entitled to free minerals from the public lands is simply unacceptable to environmentalists. Why should hard rock miners continue to freeload off public resources? No other federal mineral resources a given away. The Federal Land Policy and Management Act declares that "it is the policy of the United States that . . . the United States receive fair market value of the use of the public lands and their resources unless otherwise provided by law." The 1872 Law should no longer be the exception to this policy.

Another example of an area "where consensus will be difficult to achieve" is the implicit assumption of the industry that its interests should take precedence over all other values on the public lands. The environmental community believes that hard rock minerals are only one of numerous important resource values inherent in the public lands, and the interest of the mining industry in extracting minerals is not necessarily the paramount value in every instance on those lands. This means that the land management agencies should have the authority to deny certain mineral exploration and development activities on public lands deemed to be incompatible with non-mineral values that may be considered more important. How do we make these determinations? They are determined through the agencies' land use planning process, which affords the public as well as the mining industry an opportunity to participate in the agencies' land use decisions. Through this process, the agencies should arrive at a general decision regarding where and what kind of mining activities are appropriate in given areas, and where they are not.

A final example of an area of conflict (we might as well call it that) is over the nature of regulation of ongoing mining exploration and development activities. Environmentalists believe that the following basic principles should apply to all hard rock mining operations: (1) there shall be no discharge of mining wastes into any medium off the mine site throughout the duration of mineral activities and at any time after they have ceased; and (2) all operations should be reclaimed to a productive use after mining operations have ceased. These principles are derived from long experience with the irresponsible behavior of the mining industry in the past. The scars of mining activities undertaken during the past century are still evident throughout the West. If the mining industry wishes to benefit from the exploitation of the public's minerals, then the costs of environmental protection will have to be considered a part of the industry's cost of doing business on public lands. Moreover, citizens who live beyond sites subjected to mineral activities, and the environmental and other resources values which reside on areas beyond the site of operations, should in no way be expected by the industry to bear the environmental problems caused by their operations. Finally, environmentalists do not wish to saddle future generations with newly created Superfund sites as a consequence of the current gold boom in the West. It is our impression that the industry has yet to accept these premises.

These disputes emphasize the basic conflict in philosophies dividing miners and environmentalists: Miners are primarily interested in enjoying the short-term economic benefits to be derived by exploiting the fruits of America's natural resource endowment, and are not particularly concerned about the environmental costs to future generations of Americans of their economic success. On the other hand, environmentalists are primarily concerned with protecting our nation's natural heritage for our children, and not leaving them with a legacy of environmental problems as a consequence of our short term profligacy. American public opinion is not on the miners' side.

To date some representatives of industry have shown a willingness to recognize the irrelevance of the 1872 Law. But by and large, the industry and its representatives are preaching "massive resistance" to change. They have been successful in keeping this brain-dead patient alive for a long, long time past its useful life. Unfortunately, the treatments have become increasingly expensive for both the industry and our society to maintain. The question is, how long do they intend to keep the corpse breathing in lieu of a well-deserved final rest?

PREPARED STATEMENT OF ROBERT A. SANREGRET, A.B., M.B.A., J.D., REPRESENTATIVE OF THE WESTERN MINING COUNCIL, INC.

Mr. Chairman and Members of the Subcommittee:

Thank you for allowing the Western Mining Council to present its views in opposition to S. 1126 ("The Mining Law of 1989"). Our opposition is based upon the fact that S. 1126 would repeal the current U.S. Mining Law's efficiently-operating incentive system of mineral exploration and development, and would replace it with a cumbersome "lease/fee/royalty system" of restrictive fees, royalties and regulations tantamount to nationalization of U.S. mineral exploration and development.

I. INTRODUCTION

The Western Mining Council, Inc., is a nonprofit corporation consisting of independent mineral prospectors and developers, including many individuals, small companies and owner-operators, active throughout the Western United States, who are interested and active in mineral exploration and development. Most major mines and most major mineral deposits in the United States have been discovered by independent individual mineral prospectors under the U.S. Mining Law.

The U.S. Mining Law consists of hundreds of statutes, regulations and court decisions dating from 1807 to the present time. The 1872 General Mining Act is one of about 65 separate mining statutes, and is an important part of the U.S. Mining Law; but it is erroneous to refer to the current composite U.S. Mining Law as "one outdated 118-year-old statute," because there are hundreds of interrelated "Mining Laws" which have been continuously amended and updated, resulting today in the present clearly-defined and predictable set of groundrules for efficient mineral exploration and development on public land.

The United States Mining Law operates to efficiently locate and identify minerals on public lands, and has been aptly referred to as "the world's premiere remaining example of an incentive-based free enterprise system at work." We need mineral exploration and development under the Mining Law today more than ever before. For example, the Soviets have lost the "Cold War" largely because we were more productive, particularly including in our mineral exploration and development under the Mining Law. However, the Soviet Union has about three times the mineral potential of the United States. The Soviets are well on their way to finally figuring out our free enterprise system and our Mining Law; and when they do, they will be in a position to "bury us" economically, unless we keep our own mineral exploration and development industry alive and well under the Mining Law. Today we, and most of the world, are absolutely subservient to the Soviets and South Africa for virtually all of our chromium, rhodium, platinum, and other essential minerals. It is a distinct possibility, if not a probability, that the United States and many other countries will be subject to political and financial extortion by unfriendly foreign mineral cartels, which would be much more serious and damaging to our productivity and to our national security than the current envisioned "oil crisis."

In fact, to more fully develop our own limited mineral potential, the Western Mining Council strongly recommends that the incentive-based U.S. Mining Law not be destroyed by S. 1126, but, rather, that the Mining Law be expanded to specifically include the following: (a) Federal acquired lands in all states and territories; and (b) seabed lands to the 200-mile limit.

This valuable U.S. resource of utilizing the self-initiation and incentive of private citizens to explore for minerals and to develop mines under the U.S. Mining Law at no cost to the public should not be destroyed, as it would be under S. 1126.

II. UNDER S. 1126 THE UNITED STATES WILL NOT HAVE A VIABLE MINERAL EXPLORATION AND DEVELOPMENT INDUSTRY IN THE YEAR 2000 AND BEYOND

S. 1126 would devastate the present incentive-based mineral exploration and development industry in the United States because many many mines and exploration companies would be put out of business by the restrictive additional fees, royalties and regulations under S. 1126. Today's mineral exploration and development by thousands of individuals and firms would be difficult or impossible under the "lease/fee/royalty" system proposed under S. 1126. If U.S. mineral prospectors are prevented from discovering and developing new mines under S. 1126, the direct result would be that when the present mines are exhausted, only a few of the financially strongest mining companies would be able to develop new locations under S. 1126's new layers of fees and restrictions, and under the array of existing and new "anti-mining" laws and regulations. The result would be the exporting of mineral exploration and development, the exporting (loss) of thousands of U.S. jobs, an increased trade deficit resulting from the purchase of foreign minerals (while ours lie "fallow" and undeveloped), and subservience to foreign mineral sources. The U.S. oil "crunches" of the last 20 years, and of today (even with a worldwide oil glut) dramatically demonstrate the obvious serious detriment to the United States being dependent upon and subservient to unreliable foreign sources for oil, or for minerals.

"Anti-mining" laws are frequently disguised as "revenue-raising," "wildlife" or "environmental" laws, many of which should not have been enacted in the first place without full Environmental Impact Reports, or at least with a full analysis and consideration by the Subcommittee of the economic effects, such as we are attempting to do here with S. 1126.

Even now, the continuing detrimental "chilling" effect of many of our existing laws and regulations should be fully examined. Of specific critical concern are the many thousands of jobs and billions of dollars lost or endangered by erroneous and premature accusations and regulations under certain "environmental laws," and, under the particularly egregious Endangered Species Act. These environmental laws and the Endangered Species Act have already created new cumbersome layers of bureaucracy, spurred on by the private well-funded environmental activist groups pushing their hidden agenda of "No Development, No Mining and No Oil."

S. 1126 is proposed as a "revenue raising" bill, but will cost much more than any revenue raised. The real agenda of many devoted proponents of anti-mining legislation such as S. 1126 under the guise of "revenue raising" or environmental laws, is to rid the United States of mining, all mineral exploration and development, and of all development.

United States mining and mineral exploration and development are subject to the strictest environmental regulations in the world. U.S. mining today does not hurt or destroy the environment. Miners and prospectors are very much "pro-environment," and do much more for the preservation of wildlife and the environment than do most of the vocal environmental activists. Miners do not hurt or kill animals; and in fact, mining activity has substantially increased the numbers and well-being of much wildlife, specifically including the Desert Tortoise and the Bighorn Sheep.

The mineral exploration and development industry today is operating efficiently and in compliance with all of the current strict environmental controls; but, S. 1126 could well be the coup d'etat to end our efficient incentive-based system of mineral exploration and development.

The United States will not have a viable mining industry in the year 2000 and beyond, under S. 1126, because of the increased burden on existing mines, and because the present incentive-based mineral exploration and development "infrastructure" would be devastated by the "lease/fee/royalty" system and by the burdensome nonproductive restrictions of S. 1126.

III. THE UNITED STATES CAN EXPECT TO HAVE A SECURE AND STABLE DOMESTIC SUPPLY OF HARDROCK MINERALS UNDER THE PRESENT MINING LAW

The incentive system of our present Mining Law encourages citizens to conduct mineral exploration on the U.S. public lands. This system operates to effectively locate and identify mineral deposits, and permits and encourages the locator to either develop a mine or to "inventory" the minerals for future extraction. In 1955 one of the many amendments to the Mining Law initiated the concept of "Multiple Use" of public lands; and today a mineral prospector or miner does not have the exclusive possession and use of his mining claim until the claimholder has patented the land by proving the presence of a substantial mineral discovery and a development plan that is feasible and reasonable.

Mineral patents have been the subject of substantial recent discussion, and patenting seems to be widely misunderstood. Mineral patenting is the incentive and protection provided to good faith mining claim locators. This protection consists of the exclusive mineral rights given to the U.S. citizen who discovers a mineral deposit, and the citizen's right to acquire title by a patent. There is no up-front subsidy by the federal government, no "subsidy payment" for not prospecting, and there is no payment for not producing. Obviously only a small percentage of mineral exploration prospects result in profitable mines. During the mineral prospector's exploration and development activities, the prospector is specifically prohibited from unduly degrading the land or the environment. The mineral prospector's incentive and reward for making a valuable mineral discovery is the prospector's assurance under the Mining Law that he may develop the mineral deposit, and get a mineral patent.

The Western Mining Council, and most miners, strongly oppose the illegal use of mining claims and fraud in patent applications. The U.S. Mining Law and patent system should not be faulted and destroyed just because of the possible bad faith or fraud by an occasional dishonest patent applicant (which is almost invariably exposed, and no patent issued). Such hasty action would be like closing down all of the Interstate Freeways because they are occasionally wrongfully used by drunk drivers or bank robbers. Without the incentive of the Mining Law we would not have our present mineral exploration and development system operating efficiently in the United States today.

If left as it is, the existing incentive-based system of mineral exploration and development under the Mining Law will continue to effectively locate, identify and secure a stable domestic supply of minerals, as it has for the past 150 years.

IV. THE U.S. RELIES UPON PRIVATE MINERAL PROSPECTORS TO LOCATE, IDENTIFY AND "INVENTORY" MINERAL DEPOSITS FOR FUTURE DEVELOPMENT

Most of the mineral discoveries in the Western United States have been made by independent private citizens under the U.S. Mining Law. Many of these mineral discoveries have resulted in major mines, with each mine complying with stringent environmental controls and reclamation requirements. The incentive for these citizen-prospectors is the Mining Law which provides an opportunity for U.S. citizens to prospect for minerals on public domain land, without damaging or degrading the land. The major U.S. mining companies agree that approximately 70–80% of their mines have come from discoveries by individual citizens prospecting for minerals under the current U.S. Mining Law.

The California Chamber of Commerce stated in June 1989 that: "Mining corporations would be crippled without the aid of the individual prospectors to help in the location and identification of future mineral deposits."

Today the Mining Law is efficiently maintaining an effective system of mining, and of locating, identifying and "inventorying" minerals for future development and use, at no cost to the public.

There are thousands of private citizens who regularly explore for minerals in the United States, without degrading the environment, with full environmental controls and with reclamation of the land after their work is completed. The exploration and development equipment today is vastly superior to that of 10 to 50 years ago. Instead of a burro, the 1990 mineral prospector has a 4-wheel-drive vehicle and perhaps a metal detector or magnetometer. Today's efficient methods and equipment enable mineral prospectors to locate previously hidden or unknown mineral deposits. Also, modern efficient processing and development methods make many previously uneconomic low-grade deposits commercially feasible today.

The mineral discoveries by citizen-prospectors provide an efficient low-cost system of finding previously unknown mineral deposits on the public lands of the United States. For example, it has been recently reported that private citizen prospectors have discovered commercial deposits of chromium, manganese and platinum in California, which, if true, would help to eliminate our dependency upon foreign sources for these essential minerals. Such mineral deposits cannot be identified and "inventoried" without these citizens prospecting for minerals under the U.S. Mining Law.

There are many world-class mines in the Western United States which were discovered by individual private prospectors, looking in areas not previously known to contain commercially valuable mineral deposits. These major mines include Molycorp's "Mountain Pass Mine" (major world source of rare earths), Gold Fields Mining Corp.'s "Mesquite Mine" (over $80-million annual gold production) and U.S. Borax Corp.'s "Boron Mine" (60% of the free world's borates). These major mines in California, and many others elsewhere, would never have been developed without the incentives under the Mining Law. There are thousands of persons today, and several in this room, who regularly go out prospecting for minerals on U.S. public lands.

The U.S. Mining Law provides mineral prospectors with incentives in that if a citizen-prospector finds a mineral deposit, then that person may develop a mine, at no cost to the public.

S. 1126 and patenting are not "environmental issues." U.S. mining and mineral exploration are the most heavily regulated in the world, and mineral patenting today is very closely monitored and controlled. The organized groups of environmental "activist" supporters of S. 1126 must be recognized for their unreasonable anti-mining agenda of "No Mining, No Oil and No Development," anywhere in the United States.

In 1989 the American Mining Congress stated that: "The contribution of the small miner to the search for new mineral wealth is substantial, [and] . . . both the executive and legislative branches of government must assure the small miners' continued access to public lands to search for, develop and produce new mineral wealth without the fear that he will be unable to enjoy the fruits of his labors."

V. S. 1126 WOULD INCREASE THE U.S. TRADE DEFICIT BY ACCELERATING THE EXODUS OF MINERAL PRODUCTION COMPANIES, AND REQUIRING INCREASED PURCHASES OF FOREIGN MINERALS

One of the most significant permanent and long-term economic effects of S. 1126 would be the increase in the U.S. trade deficit caused by our importing more foreign minerals rather than exporting them from the United States. At a time when our nation needs to stimulate the creation of new jobs, to improve the U.S. trade deficit and to strengthen the economy, the passage of S. 1126 would operate directly counter to most of this country's specific economic goals; and S. 1126 would hasten or aggravate a recession. We must stop exporting jobs, and we must stop relying upon imported minerals (and oil) which we have reasonably available for production and development in the United States. The armed forces and private industry of the United States run on minerals, which should be United States minerals.

The costs of closing U.S. mines or not allowing new mines to open would be tremendous. Today we are overpaying for foreign minerals because of previous closings of United States mines and mineral exploration operations, while the minerals lie available on our public land.

Please consider the recent exodus of mines from the Western United States due to a combination of environmental and economic pressures (obviously, even before S. 1126), including the following:

(1) *Steel.* We are now overpaying for Japanese steel, processed from Brazilian iron ore. When the Eagle Mountain Iron Mine and the Fontana Steel Plant (in Riverside County, California) closed in 1983 due to environmental pressures and Kaiser's economic problems, the Japanese immediately stopped dumping steel in the U.S. and raised their steel prices substantially. Most West Coast steel today is purchased from Japan, and Japan purchases much of its iron ore from Brazil. The tragedy of the Eagle Mountain Iron Mine is that hundreds of millions of tons of usable iron ore are lying fallow and readily available in the U.S., while we buy Japanese steel at inflated prices. Brazil has cheap labor and minimal environmental controls; millions of tons are shipped from Brazil to Japan, and from Japan to the U.S., in diesel-powered freighters; and the world environment is more polluted. Kaiser created an estimated $1-billion annually in total iron, steel and related production before Eagle Mountain and Fontana were closed down. The 1983 Kaiser closure destroyed and "exported" 20,000 jobs. Efforts to reopen the Eagle Mountain Iron Mine have been unsuccessful because of the continuing unrelenting pressure from the radical environmentalists who aggressively fight any development or mining anywhere in the United States.

(2) *Rhodium.* The price of rhodium soared from $1,300/ounce in November 1989 to $7,000/ounce in July 1990, with industry predictions of $10,000/ounce soon. Rhodium is a platinum-group metal used in catalytic converters, and is imported primarily from South Africa. Rhodium is known to exist in small quantities on U.S. public lands; but exploration for rhodium will stop under S. 1126.

(3) *Talc.* We are now overpaying for Chinese talc. In 1987 a large U.S. talc mine was closed because of environmental pressures, the equipment was loaded into containers and shipped to Mainland China; and today we are no longer exporting talc, but are now importing processed talc from China, to the detriment of our trade balance, local jobs and our standard of living.

(4) *Fiberglass.* We are now overpaying for Turkish colemanite, a major component of fiberglass. Colemanite was mined in the U.S. until recently when the mine closed; and our major supplier is now Turkey. Hopes of reopening and developing this closed U.S. colemanite mine, or discovering new sources, would virtually disappear under S. 1126.

(5) *Mercury.* We are overpaying for mercury. By means of a false environmental scare, the major U.S. mercury mine at New Idria, California, was closed, dismantled and the homes and jobs of several hundred workers were literally destroyed. After the demolition of the houses and closing of the operation, it was learned that there was no "environmental hazard" at all, because the gravel and tailings upon which

the town had been built were completely safe and free from mercury and other hazards, and the readings on mercury were less than even the stringent "safe" and "normal" background standards.

(6) *Wollastonite.* The non-metallic mineral wollastonite plays a critical role in energy conservation by use in high temperature ceramics, paints and plastics. Wollastonite is increasingly important in the development of energy-saving automobiles and other products. The major producer of wollastonite is Finland. Today, the world's largest known wollastonite deposit lies undeveloped on our public land; and the development of this prospective world-class U.S. wollastonite mine would be curtailed or stopped under the restrictions of S. 1126 and related regulations and laws.

If more U.S. mines are restricted or closed under S. 1126 or similar laws, the present U.S. mineral production would have to come from elsewhere—colemanite and boron from Turkey, talc and rare earths from China, and steel from Japan made from iron ore shipped from Brazil. Our strict U.S. environmental controls do not exist in Brazil, Turkey or China. By "exporting" U.S. mining overseas, the result would be a decreased U.S. gross national product, a decreased U.S. standard of living, an increased U.S. trade deficit, and increased world pollution. The "revenue" raised by S. 1126 would be minimal, compared to its tremendous costs. Under S. 1126 the U.S. public would "lose"; the U.S. mineral exploration and development industry would be devastated; the world environment would suffer; and the U.S. would still pay more, possibly much more, for the very same minerals which would lie untouched on public lands in the United States.

What better example of the serious detrimental effect of our reliance upon and subservience to foreign sources of minerals and oil than the current oil "shortage" and the extreme measures, including war, that the United States is now contemplating in the Middle East to protect sources of oil. The same scenario, only worse, could well be repeated if the United States becomes subservient to unreliable foreign sources of essential minerals.

The yellow flag is up; and now is the time for this Subcommittee to fully investigate and determine the short and long term detrimental effects of the destruction of the incentive-based Mining Law and the de facto nationalization of the U.S. mineral exploration and development industry under S. 1126.

VI. S. 1126 WOULD COST THE U.S. ECONOMY AND THE U.S. PUBLIC MANY BILLIONS OF DOLLARS

Please consider the following tremendous costs to the U.S., and to the U.S. citizens, which would result if S. 1126, or a similar law, were to be enacted:

Cost #1—Increased Prices of Minerals. The cost of many essential minerals and rare earths would rise because of the disappearance of the supplies and identified future sources of these minerals from United States public lands. The U.S. would be subject to the uncertainties of unreliable foreign sources and cartels for many essential, critical and strategic minerals, just as we were in the oil "shortage" of the 1970's, and as we are today with the Persian Gulf "crisis." We are already paying excessive prices for foreign steel, chromite, mercury and talcum powder. Please do not make it worse by enacting S. 1126.

Cost #2—Fifth Amendment "Takings." Billions of dollars of eminent domain awards would be due to the present owners if mining claims and businesses are destroyed or impaired because of S. 1126 and the "regulations" which would implement the law. The U.S. government would be liable for these inverse condemnation takings under the Fifth Amendment, as reaffirmed in recent U.S. Supreme Court decisions. Such takings, and especially "regulatory takings," are compensable, as specifically set out in Executive Order 12630 of March 15, 1983. For example, in 1980 a federal lease which had been restricted by wilderness regulations was held to be a mere "shell" lease, and a compensable taking. Existing mining claims and businesses which are subjected to new impairing restrictions under S. 1126 would also be "takings" of property requiring compensation under the Fifth Amendment.

Cost #3—Non-Compensable Losses and Homelessness. Thousands of U.S. jobs have already been lost and persons made homeless by unwise and unthinking legislation and regulations; and many more would result from S. 1126 and the regulations and similar laws which would follow. Particularly hard hit would be independent family mining businesses, private exploration and mining development companies, related service and support businesses, equipment sales and service, and, of course, the thousands of future prospective mineral exploration and development businesses and individuals. Most of these private future losses of businesses, income and property would be non-compensable under the Fifth Amendment.

Cost #4—Dependence Upon Unreliable Foreign Sources for Minerals. The most serious "cost" of S. 1126 and the most serious effect of the devastation of the U.S. mineral exploration and development industry, would be the increased dependence of the United States upon foreign sources for essential minerals and rare earths which are indispensable to maintaining our dominant position in the critical areas of military hardware, space technology, nuclear fusion and super-conductivity. We would be unable to keep our "edge" if a foreign nation or cartel chose to not sell us their particular essential minerals. No dollar value can be placed upon the U.S. retaining its position as the world leader in high technology research, security and national defense. The list of affected minerals is long and varied, including: Iron ore, rare earths, rhodium, palladium, other platinum group metals, precious metals, talc, titanium, chromium, etc.

We support the position of Mr. John A. Knebel, president of the American Mining Congress, who stated on August 9, 1990 (on ABC's "Prime Time Live") that the United States would be a third-rate power today if it were not for the effective mineral exploration and development under our incentive-based U.S. Mining Law.

VII. CONCLUSION

The U.S. mineral exploration and development system works efficiently under the present U.S. Mining Law (including the "1872 General Mining Act," and the hundreds of amendments, regulations and court decisions). This efficiently-operating mineral exploration system locates, identifies and "inventories" U.S. mineral deposits and reserves for future use, at no cost to the public. Thousands of individuals and mineral exploration companies would be devastated by the excessive regulations, royalties and fees under S. 1126. S. 1126 would result in increased mineral prices, and would have a detrimental effect on the U.S. trade balance and the gross national product by the "exporting" of thousands of jobs and businesses, and by necessitating increased importing of essential minerals. The parallel to today's Persian Gulf crisis is obvious

In 1990, when the citizens of many nations are liberating themselves from years of excessive and inefficient nationalization and government regulations, the U.S. Congress should encourage and expand the efficiently operating incentive system of mineral exploration, identification and development which is working well. S. 1126 is not an "environmental law," and the U.S. mining industry is already one of the most environmentally regulated in the world. S. 1126 would hurt the U.S. mineral exploration and development industry, with no substantial "revenue" or commensurate benefit to the United States.

Mr. Chairman, I implore you to consider the implications on the future of the United States if the facts set out are true. If these facts are wrong, I would certainly like to know. However, if they are accurate, the United States would be seriously hurt by the enactment of S. 1126. And, Mr. Chairman, I further respectfully ask you and the S. 1126 Subcommittee to fully examine the costs and detrimental effects of the destruction of our present efficient incentive-based Mining Law. If it ain't broke, don't fix it.

This Subcommittee should fully examine whether or not there would be substantial detrimental and devastating costs and effects of S. 1126, without any benefits. In the event that the facts and conclusions herein are true, then it is absolutely critical that S. 1126 not be enacted. The incentive-based U.S. Mining Law should be expanded, not destroyed. We do not need and cannot afford the tremendous cost and the de facto "nationalization" of U.S. mineral exploration and development under S. 1126, and S. 1126 should not be enacted.

The Western Mining Council will be happy to provide this Subcommittee with substantial additional information and data on the facts and statements set out in this testimony, most of which are readily available in industry and public records.

Thank you for allowing the Western Mining Council to present its views in opposition to S. 1126.

PREPARED STATEMENT OF PHILIP T. STAFFORD, VICE PRESIDENT, GOVERNMENT AND INDUSTRY RELATIONS, CURTIS TUNGSTEN, INC., STERLING, VA

Mr. Chairman and Members of the Subcommittee:

Curtis Tungsten in December 1989 became a producer of tungsten from the largest currently economically viable tungsten ore deposit in the world. The mine and mill is located in Los Angeles County, California 35 miles northeast of Los Angeles in the Sheep Mountain Wilderness Area, San Gabriel Mountains. Current production is from a rich, 4%-grade scheelite vein. Average grade of tungsten ore that is mined in the world is less than 1%. The level of detrimental impurities in the tungsten ore and concentrate is so low as to be of no significance. This is important to the consumer, as such impurities can be dangerous or damaging in the downstream usage of tungsten.

The total ore reserve in the deposit is placed at 410 million pounds of tungsten, or about 5% of the world's mineable reserve. There are three larger mines in the world—one each in Canada, China, and the USSR. The mine was not put into significant production earlier mainly due to roadblocks thrown at the owners mostly by U.S. Government agencies, but also by financing problems caused by retaining controlling interest by the owners.

After 17 years of delay, the company now has all its infrastructure in place, is mining, milling, and selling tungsten concentrate. Full planned production initially of 3 million pounds of tungsten content annually is expected by the next 3 months. It may be of interest that access by vehicle to the property was blocked by the U.S. Forest Service for 7 years until during 1985, the U.S. courts ruled that the company be granted access.

The company is registered under the U.S. 1934 Securities Act and is a full reporting company. It is publicly held, having more than 1,000 stockholders in several states. Public stock offering was made and completed in 1989 in order to generate adequate capital to initiate tungsten mining and milling. The company has no long term debt, and it has received no subsidy from any government as have most tungsten mines in the world. The company has only received trouble and roadblocks from government for the most part. S. 1126 could kill our company. Then China could take over tungsten.

The proposed "Mining Law of 1989" can create problems which would not allow the United States to succesfully find and produce significant non-fuel minerals in the future. The proposed law will destroy all initiative for exploration and development. It would allow anti-mining, pro-environmentalist/preservationist actions by U.S. Government officials which could stop mining without adequate or just cause. The United States could become a second-rate nation.

For example, in the case of our tungsten deposit, mine, and mill, under your proposed legislation we could not have found, developed, and started production for a critical and strategic commodity. As late as June 20, 1990 the Assistant Secretary of Defense (Production and Logistics) increased the U.S. National Defense Stockpile goals of tungsten by 27% from 55 million pounds (tungsten content) to 70 million, which is the total amount in the stockpile. Tungsten is critical for ordnance, armor, and radiation shielding, and U.S. defense industries. Those who think we will have peace from now on are dreaming. I would like that also, but know we must be prepared at all times for any sort of war, or else give up now.

Currently, the United States receives 70% of our annual tungsten concentrate needs from China. Most of the rest is from other unstable countries, especially Bolivia and Peru. Our underground mine, when in full, initially planned production, will furnish 20% of the U.S. needs, thus helping to alleviate dependence on the unstable sources.

So, please do not play into the hands of the Communists and militant environmentalists/preservationists who do not want a viable U.S. mining industry. Those groups want to romp on our federal lands or grab control for their own usage. I love Nature and God more than most of those people, but recognize that we must have the means to defend ourselves. An adequate economically viable mining and mineral processing industry is part of the necessary base, and the small miner/prospector is an essential part of that base.

The small miner/prospector is the backbone of our domestic hard-rock mineral industry. The large mining companies will not spend money to finance people to try and find potential new mineable ore deposits. Instead, they finance people to try and locate the small miner/prospector that has already found the deposit.

Our small company represents an example of one that is beginning to prosper under the Mining Law of 1872 and its amendments as well as the various California and other U.S. laws, rules, and regulations, including significant environmental ones. We certainly do not abuse these. Actually, abuses on federal lands by miners and non-miners can be corrected by equitable enforcement of existing laws, rules, and regulations by the U.S. Forest Service, the U.S. Bureau of Land Management, and other federal and state agencies.

Many so-called miners are merely squatters on federal land. Those with valid claims should either perform the government-required work toward bona fide mineral development and production, rather than just living on the land, or else relinquish their claims. Those squatting without claims should be removed. We do not need new mining laws. We need enforcement of the existing ones.

For our own national defense and economic security the U.S. and state governments should be aiding the U.S. hard-rock mining industry, riot helping to destroy it. Agriculture and minerals are the primary essentials for our affluent society. Our manufacturing and service industries are not possible without food, fuel, and metals.

Senator Bumpers proposes that the Mining Law of 1872 be scrapped for a new one, "The Mining Law of 1989", or 1990, as the 1872 law is old and outdated. The U.S. Constitution may be old and outdated in the eyes of many, but it works. The Mining Law of 1872 is still a good law, but better enforcement will improve it.

I am expressing the views of a minority (Small Miners of America; please see attached emblem). This endangered minority (1.2 million claim holders in the United States) deserves some consideration. The small miners will be the most seriously affected in the short term by new, repressive, anti-mining legislation. The entire U.S. population will lose in the long term.

CURTIS TUNGSTEN, INC.,
Sterling, VA, August 6, 1990.

MS. LISA VEHMAS,
Professional Staff Member, Subcommittee on Public Lands, National Parks and Forests, Committee on Energy and Natural Resources, Washington, DC.

Reference: Hearing of September 13, 1990, S. 1126, Mining Law of 1989.

DEAR MS. VEHMAS: Our company feels that the small miner in the United States in the past has been discriminated against by being underrepresented in Congressional subcommittee hearings relating to changes in the 1872 Mining Law. Our company desires to have a few minutes to present our viewpoints during the August 13, 1990 hearings of the Subcommittee on Public Lands, National Parks and Forests concerning such changes by introduction of an entirely new law.

Publicly-owned Curtis Tungsten struggled for more than 17 years to begin underground mining of the largest currently economically viable tungsten deposit in the world (three other developments are larger, one each in Canada, China, and the USSR, but none are operating due to low world tungsten prices).

The Curtis Andrew mine is located in Los Angeles County, CA, 35 miles northeast of Los Angeles in the Sheep Mountain Wilderness Area, San Gabriel Mountains.

So, please let the small company get a fair hearing in all of this controversy, for it seems only a privileged few are invited to present their viewpoints. Certainly, the endangered small miners in the Western States have not been able to speak. They seem to be destined as a vanquished species, similar to the California Condor and Spotted Owl. Please notify us of your decision on this request.

Respectfully yours,

PHILIP T. STAFFORD,
Vice President.

CURTIS TUNGSTEN, INC.,
Upland, CA, August 28, 1990.

Hon. DALE BUMPERS,
Dirksen Senate Office Bldg., Washington, DC.

Re: Response to Proposed 1990 Mining Law, S. 1126.

DEAR SENATOR BUMPERS: Thank you for the opportunity to express the views of a minority (Small Miners of America); please see attached emblem.

I personally responded to the June 7, 1989 hearing on this bill, please see attached testimony.

I have also requested as the CEO of a small mining company in writing, the rights to testify at the September 13, 1990 hearing in Washington, DC, but at present have not received any confirmation. Therefore, to insure proper representation of the minority (1.2 million claim owners in the United States) the following is our concerns and views.

The bill is proposing that mining claims be broken up to reflect either exploration or development and pay a fee to the government as well. The exploration claim in this bill places a fine on the owner if they produce and sell the product in order to establish a viable market so as to proceed to full development phase.

The bill proposes paying the government an 8% royalty on any production of hard-rock minerals. This proposal renders the mineral industry obsolete in the United States because this royalty eliminates all profits. The lack of profits thereby eliminates financial assistance which in turn closes the operation permanently. However, should the mine survive this royalty payment then the prescribed fees in section 204 finish the job for the prospector and small miner. The prospector and small miner are the only ones that have discovered all existing hard-rock mineral deposits to date in the United States.

The section of the bill which allows payment to the government instead of performing the prescribed annual labor on each claim eliminates the prospector and small miner from industry because wealthy individuals would be able to tie up large tracts of public land for the next two decades. This will in turn render the United States a totally dependent nation on foreign sources of our raw material needs.

Senator, in our extensive review of this proposed bill as well as keeping up with the media hype, we finally realized what the problem is. The problem as we see it is the misuse of the 1872 Mining Law. The misuse is not the patent process as stated in the GAO report but is the staking of mining claims on BLM and Forest Service lands and the claimant is essentially squatting instead of mining or developing the claims.

Senator, it is our opinion that to pass this new mining act in order to cover-up the incompetence and paranoia of the U.S. Forest Service and Bureau of Land Management is absurd. The existing laws allow the Forest Service and BLM to correct this problem but these "Federally Funded Agencies" would prefer that a new act be passed that eliminated the need for thought or decision-making on their part.

Therefore to change an existing law (1872 Mining Act) that is readable to one (proposed 1990 Mining Law) that is only understood by "New York type attorneys" is criminal and we believe is in violation of a Presidential Order.

Senator, since the survival of the U.S. Mineral Industry will be dependent upon the outcome of this proposed act, we therefore feel that at the very least your survival should also be dependent on same.

We feel that anyone that supports this bill should be impeached because they do not have the foresight that is needed if the United States is going to survive.

Senator, should you feel that we have taken a rather harsh stand on this issue, then may we suggest that you try to do your job by using non-mineral industry products.

Sincerely,

RONALD L. CURTIS, *C.E.O.*

CURTIS TUNGSTEN, INC.,
Upland, CA, June 6, 1990.

Hon. DALE BUMPERS,
Dirksen Senate Office Bldg., Washington, DC.

Re: Revision of the 1872 Mining Act.

DEAR SENATOR BUMPERS: The 1872 Mining Act is a "Gentleman's Agreement" to help protect the rights of the original locator of land that may have mineral potential.

The Small Miner, Prospector is the back-bone of our domestic mineral industry because without these individuals all the mineable world class deposits mined to date would not have been discovered.

The large mining companies will not spend money to finance people to try and find a potential mineable ore deposit, they instead finance people to find and locate the small miner, prospector that has already found the deposit.

The small miner, prospector's annual income is well below the poverty level and yet these individuals persist in their quest of the dream of finding "The Mother Lode" that would make all their efforts pay off.

Case in point is our deposit "the Andrew Mine". This was located in 1953 and now is the only mineable tungsten deposit in the United States. The 26 years of fighting Government agencies, environmental groups, conservation groups and large mining companies will finally pay-off for the individuals involved as well as for the United States.

The United States has been dependent on foreign sources of Tungsten from China and recent events demonstrate that this source is unreliable at best.

To take away the "American Dream" from the small miner, prospector will cripple the domestic mineral industry and will change the United States to a second rate nation because we will become solely dependent on unreliable foreign sources of our nation's needed raw materials and minerals.

Sincerely,

RONALD L. CURTIS, *C.E.O.*

CURTIS TUNGSTEN, INC.,
Upland, CA, September 6, 1990.

Hon. DALE BUMPERS,
Dirksen Senate Office Bldg., Washington, DC.

Re: Additional Response to Proposed 1990 Mining Law, S. 1126.

DEAR SENATOR BUMPERS: This letter is to augment our written testimony dated August 28, 1990, which was hand-delivered to your Washington, DC office on September 5, 1990.

Our representative in Washington, DC was informed on August 30, 1990 that we would not be able to give additional oral testimony at the hearing on September 13, 1990. The three mineral industry representatives have been chosen. We were amazed but not surprised that even Mr. T S. Ary, Director of the U.S. Bureau of Mines will not be permitted to testify.

Senator, should your 1990 Mining Act pass; then within two years after the effective date the small miner and prospector will become an endangered species. The mineral industry will consist of only multi-national corporations and will have limited expansion because they will be confined to existing known hard-rock mineral deposits. These companies will decide to only expend money for development of third-world deposits only. Within 8 years the mineral industry will not exist.

Senator, your 1990 Mining Act will affect every citizen by raising the Cost of Living Index by at least 8%. This will happen because almost everything that is used in business and in the private household is totally dependent on the price and availability of hard-rock minerals. This 8% rise in the consumer price index will plunge the United States into a depression.

This 1990 Mining Act will accomplish something that no foreign aggressor has: that is the total and complete collapse of the United States.

Senator, we were wondering if you or any co-sponsor of the bill represents a foreign country, if so who and what country do they represent?

Sincerely,

RONALD L. CURTIS, *C.E.O.*

PREPARED STATEMENT FREDERIC C. JOHNSON, GEOLOGIST, AMERICAN BORATE COMPANY, VIRGINIA BEACH, VA

American Borate Company has been mining borate minerals in Death Valley National Monument and exploring present borate trends for more reserve outside the monument since 1980. Predecessors and competitors in the borate business have been exploring and developing borates since the late 1800's. In fact, the history of Death Valley is intrinsically intertwined with the borate mineral development business. U.S. Borax Co. (a mining company) and their executives built, maintained and were responsible for the preservation of the world famous tourist facilities in Furnace Creek in Death Valley National Monument. Stephen Mather, a U.S. Borax executive, was the first Superintendent of the new Death Valley National Monument.

Today all of American Borate Company's development and exploration activities are conducted under stringent environmental regulations administered by the Bureau of Land Management in the California Desert and the National Park Service in Death Valley. The most recent of these considerations is the new bonding regulations imposed by the B.L.M. and the B.L.M.'s continuing work with the mining community to insure environmentally responsible mineral resource development.

It is with deep concern that American Borate Company views the S. 1126 attempt to repeal the Mining Law of 1872, and its individual initiative system of free enterprise. An adoption of S. 1126 would replace a good working law with a law that would cripple our nation's mineral resource development capability.

The S. 1126 proposal by Senator Dale Bumpers with its royalty leasing system and highly inflated fees would discriminate against and destroy the incentive and pocket book of the small miner and explorationist in the United States, and in turn would bring about a rapid economic cancer in America which would start at the basic local rural community level and spread throughout the country to erode the pillars of economic strength and destroy the future of our children. S. 1126 will destroy the small mining business and prospectors, and thereby, decrease the exploration capability of our country (possibly up to 60%). This lack of exploration will in turn and in time, drastically limit production of needed raw mineral materials from the United States.

The 1872 Mining Law is not out of date; it is even more important today than it was in 1872: rather that S. 1126 is out of place.

Increasing restrictions and costs and fees on mining have already made it nearly uneconomical to produce talc and borates in the U.S., and many metal mines are on the cutting edge of competitive viability in the world market. American Borate is presently on temporary shut down while Turkey holds our share of the borate market, and Pfizer Minerals has permanently shut down its Death Valley Talc operations to go mine in China.

A common mining industry comment at the March, 1989 U.S. Geological Survey and Industry joint McKelvey Forum in Reno, NV, was that a large percentage, in some cases 60%, of larger mining company exploration programs is submittals from small miners.

The McKelvey Forum explored the latest exploration innovations and efforts of industry and the U.S. Geological Survey to locate buried or hidden ore resources in the United States.

Reporting by the U.S. General Accounting Office, Senator Bumpers, Congressman Rahall, subsequently numerous newspapers, and carefully orchestrated television tabloid shows that suggest that the cost to patent mining claims is $2.50 to $5.00 per acre is absolutely false. One can only surmise that sensationalism and the lack of truly scientific study has propelled this grossly misleading and destructive information into the homes of the unsuspecting American citizen. By the time a mining claim and its reserve are located, staked, filed, explored, drilled, proven, and tested for economic viability, the cost to patent can usually exceed $2000 per acre. Under the present Mining Law and regulations, all claims requesting patent must undergo thorough State and Federal mineral examinations and surveys to prove their economic wealth. If economic viability and use for mineral development does not exist, the claim cannot be patented.

American Borate Company supports the 1872 Mining Law and does not believe any revision is necessary. The recent G.A.O. report on the Mining Law is a seriously flawed document, as noted by the American Mining Congress, and it should not be viewed as a scientific study. Any further considered amendments to the mining laws or regulations should be carefully and scientifically studied and worked out with the mining communities and their representative associations.

American Borate Co. thanks the Subcommittee for this opportunity to speak against S. 1126 with our right of free speech and we sincerely hope that the Congress of the United States of America will continue to allow us to express our right of free enterprise.

This proposal should be withdrawn in favor of the present workable guidelines of the 1872 Mining Law and its amendments which promote the utilization of our nations resources in conjunction with environmental protection.

PREPARED STATEMENT OF DON SMITH, PRESIDENT, CITIZENS FOR MINING

Mr. Chairman and members of the Subcommittee, my name is Don Smith and I am President of Citizens for Mining of Battle Mountain, Nevada. Our Group is made up of small miners and prospectors, from many western states.

I would like to thank you for the opportunity to be heard at this hearing, and have my statement entered into the record of this hearing.

After much discussion of the fee's and royalty provisions of S. 1126, we have decided that it is not a good bill for our industry.

Our contention is, that any more costs that are added to our cost's we now have, to comply to the present rules and regulations, and what is being added on to us like bonding, reclamation and anything else that some people seem to think that we should be able to afford would put us completely out of business. I am sure that it is not going to help the larger companies either.

The environmentists have taken their toll. It is time for our Representatives to wake up to the fact as to what is actually happening to our country.

When you have no more people working, just who is going to pay the taxes to keep the Country going?

It is not only the mining industry itself that will be hurt, but also all of the support groups.

Twenty thousand people have lost their job's on account of the spotted-owl in the timber industry, so now what do we have to look forward to?

I hope you will give the bill a lot more consideration before making a decision.

PREPARED STATEMENT OF ROBERT PALO, PRESIDENT, NORTH CENTRAL CASCADE MINERS ASSN., ELLENSBURG, WA

The membership of North Central Cascade Miners Assn., oppose the Fee and Royalty provision of S. 1126.

This fee will destroy a lot of small mining operations which are beneficial to finding future mineral deposits. The U.S. imports minerals that could be produced here.

PREPARED STATEMENT OF JOHN H. WRIGHT, C.P.G., INDEPENDENT MINING AND GEOLOGICAL CONSULTANT, GRAND JUNCTION, CO

Regarding the proposed bill S. 1126, the "Mining Law of 1989", submitted to committee on June 7, 1989, I should like to make comment. I am a mining and geological consultant who has made my living for over 15 years both finding and digging rare and valuable ores in the United States for clients as well as for myself. Should the proposed "Mining Law of 1989" become effective, my means of livelihood will come to an end, and the People of the United States will lose a significant amount of domestic resource and become more dependent on foreign sources than ever before. Let me explain.

The Mining Law of 1989 calls for the "disposition of hard rock minerals on Federal lands" but as it is structured, it is either outright antagonistic of the mining industry, or simply ignorant of the economics which drive it. It seemingly fails to comprehend three key concepts on which mining operates: (1) the concept of what constitutes ore, (2) the effect of market on mine life, and (3) the concept of exploration for ore.

ORE

In a market driven economy, "ore" is classically defined as "mineral that can be mined at a profit". That is not simply the "occurrence" of a mineral—it must be present in sufficient concentration and quantity so that the digging of it can be profitable. The point that describes that combination of concentration and quantity at which digging of the material becomes profitable is called "the cut-off grade". Material above that grade is "ore", that below the grade is not ore. An identified quantity of ore is an "ore reserve".

Ore, to paraphrase an expression, is where you find it. But there is much behind that little saying. Ore is not a renewable resource. It does not grow like a tree in a forest, nor like a corn stalk in a field, nor can it be propagated like a herd of cattle. What ore is there, is simply there, and that is all that is there.

So in the United States, as anywhere else in the world, we have a finite, nonrenewable resource or reserve of ore. The Mining Law of 1989, if passed, would automatically cause the People of the United States to lose a significant part of their natural resource of ore.

Cost to produce, and market for product, naturally combine to determine what is profitable, and hence what is ore. The Mining Law of 1989 calls for an overriding royalty to be paid to the United States of 8% of the value of hardrock production. (It does not specify on what state of value the royalty is assessed, ie. gross value, recoverable value, liquidation value. Nor does it specify who sets that value. In a market economy, such as that of the United States, the value can be extremely variable over time. In a centrally planned economy, like that of Russia, I suppose the assignment of value is simpler). A "comfortable" rate of return for "hardrock" mining operations may be 20%, based on the liquidation value of the "ore'. With serendipity, the mine might experience better than 20%. With the usual fortunes and attendant risks in mining, however, less than 20% is more likely. The royalty proposed, assuming it is applied to the least damaging "value" cited above, would cut into anticipated profits nearly one half.

Leaving aside the question of what may be fair, one has to ask: "what is the effect of that royalty?" Immediately, as a new cost is applied, the cut-off grade goes up. The lower grade end of the ore reserve profile falls below the cut-off grade and that quantity or tonnage becomes "non-ore". One can not simply mine more of the low grade to make up for the new cost, because one can not afford to mine even one single ton of it. Over an entire ore reserve profile, the available quantity of "ore" is diminished, and hence the life of the mine is shortened.

Therefore, and by simple extension, the total natural resource of ore in the United States is diminished by virtue that the new cost would cause some of what was formerly "ore" to be irretrievably lost from the total profile of the country.

That "some" is no small amount, for the overwhelming tonnage in reserve of most hardrock mines lies at the lower grade end of the profile.

The proposed 8% royalty is already more than is normally paid to lessors of hardrock mining claims. 5% might be considered fair, 7% extremely generous. Add an 8% over riding royalty to the Federal Government on top of a fair private lessor's royalty, and it would not be a stretch to imagine that almost all of the ore in the country suddenly "gone".

The other new costs proposed by the Mining Law of 1989, certainly add to that losing scenario. Most of those other costs, have the added ill effect of making it more difficult to ante up to even play the game. They make it more expensive to simply hope for success, leave aside the question of achieving success.

MARKET

Just as cost affects cut-off grade, so does market. For the so-called "hardrock" minerals which are typically rare, the market which governs their sales price is typically irregular. The market cycles from one mineral to another vary in the amount of time involved in each "cycle'. The Mining Law of 1989 says "the mineral patent shall revert to the Federal Government if production of hardrock minerals in paying quantities has not begun within fifteen years, or upon termination of production." Within that fifteen years there can be one or more market cycles that would force the closure of a given operation during a depressed period. Such an operation would close because the market effect had raised its cut-off grade—in essence, the mine had run out of ore. This does not mean that the mineral resource is exhausted—simply that it is not profitable to mine it. Such a condition is hopefully temporary, but if a closure is forced from a depressed market, should the property revert to public domain, be reclaimed, and await a new and perhaps undeserving claimant to re-open it when market conditions are better?

Over the past fifteen years, gold has seen three significant such cycles. Some operations I am familiar with have opened and closed three different times in response to those cycles. Should the property have reverted to public domain each time only to have another miner, other than the discoverer, enter the property each time?

Let me give another example of a broader cycle with which I am intimately familiar. Exactly 15 years ago, I worked a tungsten mine in Colorado with a partner and we made some money. Tungsten at that time sold for $120 a unit. In the latter 1970's, the U.S. began to open the trade doors with China. China began exporting tungsten to the U.S. and slowly but surely the tungsten market declined to around $50 a unit. The tungsten mine I worked could not produce ore for less than $90 a unit, so naturally we closed. The mine had not "played out". There was still plenty of mineral, but it could not be called "ore" because of the market conditions. The tungsten price has stayed pretty low for a while, but consider the future of our trading relationship with China. Will the price of tungsten go back up? In the meanwhile, should somebody else have the right to re-open the property if it does? The Federal Government did not find the stuff nor did it mine the stuff—my partner and I did, and we found it 6,000 feet underground!

EXPLORATION

The Mining Law of 1989, as mentioned above, has upped the ante on even entering the game. Why should the Federal Government offer discouragement to the prospector by increasing the cost of just looking? The diligence fees for an exploration claim of 20 acres would be escalated by a factor of x10, x20, and x60 over the present conditions. In addition to the effect of these costs on the quality of ore he must find, the prospector has not necessarily found the prize for which he is paying an ever increasing burden to look.

Onto that scenario, add the fact that most of what can been found on the surface, has already been found—the surface being the cheapest place to look. So in order to find more ore, the seeker must look ever deeper into the ground, and that act is ever more expensive with increasing depth. And it takes longer and longer to find the ore the more hidden it is. The Mining Law of 1989 doubly constrains the seeker by both increasing his cost to look, and by setting time limitations on the period in which he has to achieve success.

The so-called "hardrock" minerals addressed by the Mining Law of 1989 are really only those which have not been reclassified as leasable or salable. Leasable and salable minerals were designated as such because they are so common and relatively easy to find. The "hardrock" minerals are really those that are rare and hard to find. Since they are rare and hard to find, wouldn't it be better to let the vast majority of attempts to find such minerals—which have failed—subsidize the few successes, and to let the successful seeker be met with reward, rather than penalty?

GENERAL

The expressed intent of the proposed Mining Law of 1989 is "to provide for the disposition of hardrock minerals on Federal Lands . . .". Within it is a not too thinly veiled effort to void the effect of the Mining Law of 1872 whose expressed intent is "to promote the development of the mining resources of the United States". The Mining Law of 1989, very plainly discourages the development of mining resources in the United States.

The principal objections to the older law currently seem to center around environmental and patenting concerns. The old law has clearly shown its ability to be flexible and to embrace new environmental regulations. The patenting issue, and the nuisance effect of many unpatented claims, however, seem to remain a concern. We are a settled nation and do not really need to patent ground to private ownership. The Mining Law of 1989 proposes to issue patent to mineral rights only—in recognition of discovery—and in that it is on the right track . . . but in word only. The word "patent", which did not seem to make it into the list of definitions in Title I of the proposed law, as used is merely a misnomer for a "permit".

Assuming the true intent of a prospector is to mine what he has had the good fortune to find, a true patent of only mineral rights is perfectly appropriate. And that patent should be granted in perpetuity. Within the old 1872 law are ways to protect the prospector while he is looking, ways to strengthen the requirements for proof of discovery, and ways to reward real discovery while not brooking bogus discoveries. I submit that strengthening the 1872 Mining Law, which is demonstrably workable and promotes the development of resources, is the avenue to take in seeking to cure perceived mining abuses.

PREPARED STATEMENT OF RALPH NADER

Mr. Chairman, thank you for your invitation to testify and for holding these hearings on the difficult task of changing the 1872 Mining Act. The first attempts to reform the Act began more than one hundred years ago, yet key aspects of the Act, as it applies to hardrock mining, have remained virtually unchanged. It would be difficult to find a statute currently on the books that has been in greater need of equitable reform for so long. Our interest in the matter has been long-standing and resulted in a book, *Public Domain: Private Dominion* (San Francisco: Sierra Club Books, 1985), which concentrated heavily on the 1872 Act.

The 1872 Mining Act was enacted at a time when the government saw its duty towards the public land as that of a temporary custodian; the land was to be given away rapidly, through such means as the Homestead Act and railroad land grants. That philosophy began to change at the end of the century as the government began to recognize a value in protecting public lands and managing them in the best interests of the public. The change has become nearly complete with the Federal Land Policy and Management Act of 1976, which declared "it is the policy of the United States that . . . the public lands be retained in Federal ownership, unless as a result of the land use planning procedure provided for in this Act it is determined that disposal of a particular parcel will serve the national interest; . . . [and that] the United States receive fair market value of the use of the public lands and their resources unless otherwise provided for by statute." The Mining Act stands as the last great statutory exception to this philosophy of a public trust in the public's land. The Act sanctions giveaways of all kinds of mineable minerals, except for fuel, fertilizer and certain other minerals specifically excluded by the 1920 Mineral Leasing Act, and "common variety" mineral materials specifically excluded by the 1955 Common Varieties Act.

Under the terms of the Mining Act, an area the size of Connecticut has been "patented" into private hands—mining companies pay $2.50 or $5 an acre for this land, a "fair market price" set in 1872 when much of the West was uninhabited and inaccessible, and when prices were much lower. Each year at least four billions dollars worth of federally owned minerals pass into private hands with no return to the taxpayers. In an era where many citizens must pay "user fees" for the right to have a picnic in a national park, these giveaways are gross and unconscionable.

The Act also prejudices land use decisions, by giving automatic preferences to mining over other resource values on public lands whenever a commercial mineral deposit is discovered. This legal presumption holds equal force whether the mineral found is copper or an "uncommon variety" of sand; platinum or a locatable kind of clay. This presumption not only requires that mining be allowed, it often interferes with attempts to regulate a mining operation to protect other resource values on public land.

In contrast, the Federal Land Policy and Management Act requires that the federal land be managed to protect "scientific, scenic, historical ecological, environmental, air and atmospheric, water resource, and archaeological values," as well as for "minerals, food, timber and fiber."

The Mining Act also lacks reclamation standards. Hardrock mining on federal land is subject only to state reclamation standards, which vary widely. Furthermore, the Bureau of Land Management (BLM) does not generally require a bond to ensure reclamation on BLM-controlled land. A strong and well-enforced reclamation standard is a vital part of protecting the national interest in the public lands.

Like most corporate lobbies, the mining industry claims it should receive special treatment from Congress. In this case the special pleading is a request that the federal government continue its practice of providing free mineral rights and bargain basement prices for surface rights to corporate mining ventures. The mining companies claim that they need this subsidy because they are engaged in high risk ventures. Business ventures in the United States, however, are expected to accept the risks involved in operating a business without government handouts.

Most foreign countries have leasing programs, and capture royalties from mining companies which exploit their mineral deposits. In Canada's Northwest Territories, for example, mines pay royalties to the federal government according to the following schedule:

Value of Production	*Royalty*
$10,000 to $1 million	3 percent
$1 million to $5 million	5 percent
$5 million to $10 million	6 percent
for every additional $5 million	an additional 1 percent, but not exceeding 12 percent

In addition, many Canadian mines pay royalties to provincial governments, in amounts as high as 30 percent of net proceeds.

In developing countries the terms of mineral development are often far tougher. Tax, royalty, profit sharing, and terms for direct government investment or nationalization are designed to obtain the world market price for publicly owned resources. Congress should ask the mining companies for the terms of their mining agreements in these countries, and then compare them to the modest mining royalties that have been proposed in the United States.

In Papua-New Guinea, for example, Rio Tinto-Zinc (RTZ), Broken Hill Co. Pty., Amoco, and Kupferexploration GmbH have negotiated agreements that require profit sharing with the government, with marginal profit shares as high as 70 percent. DeBeers, the international diamond concern, boasted in an advertisement that more than 70 percent of the profit from their Botswana operations went to the government of that country. A 1986 agreement between Mozambique and Edlow Resources Inc. gave the government a 5 percent gross value royalty and 50 percent of the company's taxable income, plus 50 percent of the excess profit above a 25 percent rate of return. The government also has the right to purchase an equity share in the operation. A 1977 agreement between the Superior Oil Company, three other companies, and the government of Chile gave the government a 49 percent equity interest in a proposed hardrock mine in consideration of the land and mineral rights, and provided further for a 49.5 percent tax on the venture's income. Congress should investigate the foreign royalties paid by some of the major mining operators on public lands and patented claims—Phelps Dodge does business in Chile, South Africa, Botswana, Mexico and Peru, Asarco in Australia, Canada, Mexico and Peru.

Mining companies have reaped large economic rewards from mining on public lands. The Amax Sleeper mine, on public land in Nevada, is one of the largest and lowest cost gold mines in the country. In 1989, the mine produced 256,219 troy ounces of gold with a value of more than $100 million. The company made a net profit of $64 million on that one mine, including depreciation and depletion. A one-eighth royalty on that one mine would have brought the government more than $12 million. A 40 percent net profit royalty would have brought $26 million, assuming of course that the company did not use the kind of "creative accounting" that we so often see from companies that are required to pay royalties.

Amax is not the only corporation reaping huge profits on the public lands. The United States is in the middle of the largest gold rush in our history, yet few Americans are aware of it. The federal government has played a crucial role in the development of the Carlin trend in Nevada, the site of this bonanza. The trend was first identified as a promising area for gold by U.S. Geologic Survey (USGS) geologist R.J. Roberts in 1960. Alter the Carlin deposit was discovered by Newmont Gold geologists in 1962, the USGS did a large-scale assessment of mineralization in the region.

Although the federal government contributed substantially to the discoveries in the Carlin area, industry is reaping all of the profits. This is despite the fact that the government also owns a great deal of the land on the trend. The area is a patchwork of mining claims, patented mining claims (which are now private land), and land that mining companies acquired from other private owners. Incredibly, the government makes no attempt to record mineral production from public land, but we know that the total production from the Carlin trend in 1989 exceeded 1.75 million troy ounces, roughly $700 million worth, and we know that most of the land in the area is public domain land. Estimated proven and probable gold reserves in the trend have a gross value of more than $14 billion and geologists expect this value to increase as more mines are found and know deposits continue to be evaluated.

The largest known gold deposit in the country is the Goldstrike mine, which is on public land on the Carlin trend. Goldstrike is controlled by a Canadian-owned company, American Barrick Resources, and has an estimated gross value of more than $6 billion. This Canadian company can extract these minerals without paying any royalty to the federal government and, if it desires, purchase the land for $5 an acre, a total of a few thousand dollars.

Gold is not the only public-land mineral providing big profits for big companies. The Morenci mine, on patented land in Arizona, produced more than 250,000 tons of copper with a gross value of more than $500 million for Phelps Dodge in 1989. After 50 years of mining, an estimated $10 billion worth of copper still remains in the ground. This copper now belongs exclusively to Phelps Dodge; it has passed out of public ownership. Similarly, Amax mined roughly $150 million worth of molybdenum in 1989 from two Colorado mines that have been patented.

Not only does the government receive no royalty from these mines, but for most metals the government allows a "depletion allowance." Well known in the context of oil, this allowance permits companies to pay less in taxes as compensation for the reduction in their assets resulting from mining. The allowance is particularly outrageous in the case of mining on the public lands; companies are being compensated by the government, through lower taxes, for depleting our assets. For gold, silver and copper this allowance is 15 percent; for most other metals it is 22 percent.

Miners have used the strategic value of certain minerals to defend the 1872 Act. The Comprehensive Anti-Apartheid Act of 1986 certified ten strategic minerals that were to be exempted from the sanctions imposed against South Africa. These same minerals were discussed by Senator Frank Murkowski (R-Alaska) in his defense of the Mining Act last year. Most of these minerals, however, are not produced at all on the public lands. The total production of these minerals on public lands does not exceed $45 million a year. This is after 118 years of unrestricted access under the Mining Act. In contrast, we estimate that gold on the public lands is worth nearly $1.8 billion a year—roughly 40 times as much as the production of strategic minerals.

The country's need for a small set of strategic minerals that may never be found in large quantities on our public lands should not be used as a defense for the large-scale giveaways and abuses under the Mining Act. Further, the strategic importance of these minerals is not always clear. For many, we have large government stockpiles; in some cases we can find substitutes; and some of these minerals could be manufactured or mined here in the United States in time of crisis.

There are currently 1.2 million mining claims on federal land, including many that represent inholdings on lands that have subsequently been protected as wilderness or for other reasons. The large majority of these lack any proven mineral deposit or legitimate mining activity—that is, they are "unperfected". Defenders of the Mining Act argue that these claims are invalid, and therefore should not cause any problems for the government. But the claims do in fact encumber land management. They interfere with a variety of activities, including recreation, roads and pipelines, and legitimate mining exploration. Although these unperfected claims give their owners no vested rights to the land, they cannot simply be invalidated without the claimholder's consent. To invalidate a claim, the government must make a *prima facie* showing that there is no discovery on the claim, and hold an administrative hearing. The claim holder then has the right to appeal to the courts. Invalidating a claim can be costly and time-consuming.

Our Taxpayer Assets Project recommends a leasing system for hardrock minerals on the public lands. The mining industry has obstinately opposed leasing for more than twenty years, reflexively claiming that a leasing system would be "monolithic" and "unresponsive." In fact, leasing systems can be quite flexible, and can be used to provide incentives and protection for exploration for large companies and small prospectors alike. Virtually every country in the world has a hardrock minerals leasing system. And many states, including all of the western states which have significant activity under the 1872 Act, have leasing systems for hardrock minerals on state-owned lands.

Leasing systems can provide incentive to hardrock miners in any number of ways. Perhaps the most common is a system where an explorer has the right of first refusal on a lease in the area that they have been exploring. Since it is frequently in the interest of the government to have a mineral deposit developed this would provide incentive, while allowing the government to set whatever conditions it chose. Another idea would be to allot a portion of royalties to the discoverer of a deposit, even if a lease is issued to someone else. Leasing would also provide a way of eliminating some of the confusion that currently exists over exploration tenure.

A leasing system could also be designed to protect legitimate small prospectors, if desired. Licenses to explore most areas open to mining could be granted on a first-come-first-served basis. Small prospectors who make discoveries could either be allotted a portion of the royalties collected from their discoveries, or allowed to sell their right of first refusal to a lease.

The most contentious issue in discussions of hardrock leasing or of reform of the location system, is the government's discretion to decide whether mining will take place, after a deposit is found. This discretion is crucial both to prevent mining operations that would be inappropriate and to give federal land managers leverage to impose conditions on mining to protect other resource values.

Most foreign governments retain some amount of discretion in deciding whether to allow mining. In Australia, a discovery provides nothing other than the right to apply for a lease. Australian states have set criteria for allowing mining. For example, the New South Wales Mining Act provides that before deciding to allow mining, the government should consider "the need to conserve and protect the flora, fauna, fish, fisheries and scenic attractions, and features of architectural, archaeological, historical or geological interest. . . ." The New South Wales government also has broad latitude to set conditions on a lease to protect other resources and to ensure reclamation. Yet Australia continues to be one of the most successful mineral-producing countries of the world, self-sufficient in virtually every mineral commodity. Brazil not known for its progressiveness in checking corporate power, provided in a 1967 Act that an application for mining "will be refused if the operations are held to be contrary to public policy or if they affect other interests with precedence over utilization for industrial development."

The State of California considers environmental impacts before issuing a prospecting license, and again before issuing a mining lease. The only guarantee to explorers is that if a lease is issued for a mineral deposit, it will be issued to the holder of the prospecting permit. The state imposes a minimum gross royalty of 10 percent on hardrock production. The state of Arizona collected $4 million in royalties from its hardrock leasing program on state lands in 1989 alone. This is despite the fact that the state of Arizona only owns 9 million acres of land—less than one third as much land as the federal government owns in Arizona.

The current system on federal lands is a location system. This means that miners may enter areas that are open to mining and "locate" claims. Rights to explore and develop mineral deposits flow from these claims. Although we recommend a leasing system for hardrock minerals, we believe that it is possible to achieve some reform within the framework of the current location system, but the following criteria must be met:

(1) The surface patent should be eliminated;

(2) The location system should be limited to a clearly defined set of "hardrock" minerals, which should be restricted to high-value metallic minerals. Other minerals should be sold or leased at fair market prices;

(3) The surface-managing agencies (the Bureau of Land Management and U.S. Forest Service) should evaluate proposed mining activities, including surface-disturbing exploration activities, in the light of the multiple-use plan for the area. The agencies must be given clear responsibility and discretion to disallow mining where it does not represent the "highest and best use" of the land, and to require modifications to mining plans in order to protect other resource vales.

(4) Citizens must be given standing to sue the managing agency for abuses of discretion in regulating mining. (Mining companies frequently contest regulation in courts);

(5) Substantial diligence requirements must be required, to impose a incentive for prompt development and to discourage speculation;

(6) A royalty must be imposed on minerals extracted, so that the people of the United States receive a fair return on their property; and

(7) Mining companies should be required to reclaim the land so that it can support the uses it was capable of supporting prior to mining. Full financial bonds must be required.

H.R. 3866 would make many useful changes, but does not meet the criteria for comprehensive Mining Act reform. The Mining Act has survived reform efforts for nearly 120 years. The next Mining Act may be equally resistant to reform efforts. It is crucial that the necessary steps be taken to ensure that the Act will protect the public lands and the people who own them.

H.R. 3866 would make several improvements. It would stop the "patenting" of mining claims, a long overdue step; eliminate mineral materials from the location system; and substantially increase the cost of speculation, through rents and realistic diligence requirements. It would also require reclamation of mines, although this section could be strengthened by adopting the language in the Senate bill requiring miners to restore the land to "a condition capable of supporting the uses which it was capable of supporting prior to any mining."

H.R. 3866 would not require a royalty, allowing hardrock mining to continue as an exception to the policy of fair market value. The bill also makes no provision for citizen suits to challenge the decisions of land managers. Citizen suits have proved to be an effective tool for requiring agencies to fulfill their statutory mandates. The right of citizens to hold their government accountable is the cornerstone of democracy.

The crux of Mining Act reform, however, is the discretion and responsibility given to the managing agency to protect other resource values from mining. The language in Sections 8 and 11 of this bill, while well-intentioned, is neither clear nor explicit. It is likely to lead to a continuation of the agencies' uncertainty about the limits of their ability to regulate or disallow hardrock mining. Agencies must be given explicit authority to determine whether mining is the best use of a given piece of land, and to require modifications to mining plans to protect other resource values.

The 730 million acres of federally owned land are an immensely valuable asset held by the federal government in trust for all the people of the United States. They are crucial not only to the present, but also to the future well-being of the country. In the last 90 years, large steps have been taken to preserve this land in public ownership, and to insure that it is managed for long-term public benefit.

But much remains to be done. Special interests continue to be given a great deal of weight in every step of the land-planning process. The managers of our public land continue to operate largely for the benefit of their "clients," companies and businesses that harvest timber on, graze cattle on, or extract minerals from the public land. The public is still severely restricted from challenging these giveaway policies in court. Sturdy and comprehensive reform of the 1872 Mining Act would represent an important victory in the battle to have the public lands managed in the interests of the public.

Thank you.

PREPARED STATEMENT OF JONATHAN DUSHOFF * ON COMMENTS ON THE TESTIMONY OF STEPHEN ALFERS

INTRODUCTION

The following is a comment on September 13, 1990 testimony of Stephen Alfers before the U.S. Senate, Committee on Energy and Natural Resources, Subcommittee on Mineral Resources Development and Production. Mr. Alfers provided testimony to the subcommittee regarding the impact of the mineral royalty and diligent development provisions of S. 1126 on the mining industry.

Mr. Alfers told the subcommittee that if S. 1126, the Mining Law of 1989, became law small miners would "have no future in the U.S. mining industry," that few "junior" mining companies would survive and that the impact on the industry as a whole would be "devastating." These assertions were based on only four case studies of mining companies of which only two had been completed at the time of the hearing. It is surprising that Mr. Alfers asserts that his research "reveals . . . tentative conclusions" about three separate segments of the industry, based on only two completed case studies. Mr. Alfers provided no information on how the four companies

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* Policy Analyst, Taxpayer Assets Project.

were selected—an important ommission since Mr. Alfers implies that they are representative of the industry.

Following are comments on the two analyses that Mr.. Alfers presented at the hearing. The comments suggest that the analyses exaggerate the effects that S. 1126 would be likely to have on these two companies, and question whether the cases discussed should be seen as representative of the industry. Unless otherwise noted, data used in the comments are drawn from Mr. Alfers's submissions to the committee.

Company A

Mr. Alfers's analysis purports to show that if Company A had been operating under S. 1126 instead of the Mining Act in fiscal 1990 the company would have sustained losses of either $6.6 or $7 million due to the Act. The second figure is based on the assumption that all domestic production is from unpatented mining claims, a somewhat extreme assumption, considering that many valuable deposits have already been patented, and that large areas in the Western United States have passed out of federal ownership for a variety of reasons.

The bulk of this loss—$6 million, which represents either 86 or 90 percent of the burden that Mr. Alfers asserts the Act would place on this company—is caused by holding fees and diligence requirements for non-producing properties. This loss is based on the assumption that the company would retain all of its unpatented mining claims under S. 1126.

Company A holds a large number of unpatented mining claims, into which it has put a very small amount of effort in the years covered by the Mr. Alfers's analysis. In fact, the company's current expenditures on the claims are not nearly sufficient to give them enforceable rights in these claims under the 1872 Act. The analysis relies heavily on the unwarranted assumption that under S. 1126 the company would retain all of its unpatented mining claims. It is far more likely that the company would drop most of its claims, and concentrate only on the ones of immediate interest. There is no evidence that this would substantially harm the company.

Currently the company is not making even the bare minimum investment necessary to maintain rights to its claims under the 1872 Act—it spent only $241,613, or $46 per claim, on exploration in fiscal 1990. This is less than half of the assessment requirement of $100 per claim which is the minimum expenditure necessary to maintain rights to a claim. An expenditure of $100 per claim is rarely sufficient, however. It is not likely that many of the company's claim meet the demanding discovery standard. Therefore most of the claims would require *pedis possessio* protection. If a person-year of exploration, including equipment, costs $100,000, and if one person could maintain *pedis possessio* on five claims, protection for claims without discoveries would cost $20,000 per year. This is 400 times more than the company spent on its claims in 1990. Even if assessment were all that were required, the company would have no enforceable rights on most of its claims. In fact, it is likely that few, if any, are valid under the 1872 Act.

Although it is difficult to collect facts about the anonymous Company A, it is fair to conclude that most, if not all, of these claims are being held speculatively, because of the low cost of doing so and in spite of the dubious nature of the rights that the company has in these claims. Should S. 1126 pass, the company would most likely drop most of these claims. There is no reason to suppose that dropping these claims would reduce the company's exploration activities; the company would probably retain the claims in which it had the most interest, and the bill's diligence requirements would increase the incentive to explore them promptly; further, it would be able to continue prospecting activities on its other claims, unless the land was claimed by someone else. The land covered by claims that Company A dropped would be more easily available to other mining companies or to be used for other purposes.

The royalties of $660,000 (or $1,020,000 under the extreme assumptions) are much smaller than the alleged diligence burden, but would have a significant impact on the company. It is worth noting, however, that the company lost roughly $2 million in fiscal 1990 due to the drop in gold prices—three times the royalty that S. 1126 would impose. Holding costs for the producing property are negligible.

Given that we have no information on how the companies were selected for analysis, it is worth asking whether a company that lost $4 million last year—one third of its gross revenue—can be seen as representative of the industry.

Company C

An examination of Mr. Alfers's testimony and Amax Gold's 1989 annual report shows that Company C's average cash costs, average gold prices, earnings per share and several other measures exactly match Amax Gold for all three fiscal years shown. From this we conclude that Company C is Amax Gold, a fact that Mr. Alfers made little effort to conceal during his oral testimony.

Unlike Company A, Amax Gold is still doing quite well even after Mr. Alfers models the effects of S. 1126. According to Mr. Alfers, if Amax Gold had been operating under S. 1126 in fiscal 1989, it would have had a gross profit of $50 million, more than 40 percent of its total revenue, and a net income, after tax, of $27 million.

As in the case of Company A, the analysis assumes that Amax Gold will retain all of its unpatented claims. This is unlikely. In sharp contrast with Company A, however, Amax Gold would spend less than 1 percent of its gross revenue on holding non-producing properties even under Mr. Alfers's assumptions.

The major effect of S. 1126 on Amax Gold would be that the company would be required to pay $9 million in royalties. Although this is a substantial sum, it would by no means cripple the company. For comparison, Amax Gold lost about $11 million in 1989 due to the drop in gold prices, despite the fact that it was able to sell its gold substantially above the average market price. This $9 million would reduce Amax Gold's earnings somewhat, but this is hardly news; it is to be expected that ending a massive giveaway would reduce the profits of the companies that have benefited from it.

An examination of Amax Gold's 1989 annual report shows that Mr. Alfers's analysis of Amax Gold, and presumably that of Company A, includes depletion as a cost. If depletion can be considered a real cost at all, it is as a proxy for the cost of discovering new deposits to replace the deposit that is being consumed. Yet to obtain his final estimate for the total cost per ounce of gold produced, Mr. Alfers includes exploration costs on top of depletion.

The analysis then proceeds to consider the effect of the bill on the company if the company did not have Property 2, clearly the Sleeper mine. The reasons given for doing this are unconvincing; the Sleeper deposit, while of very high quality, is not unique; Nevada alone has seven larger gold deposits, five mines that produced more gold in 1989, and two major gold mines with cash costs in the same range—FMC's Paradise Peak mine operates at substantially lower cost. More to the point, however, if Alfers felt that the Sleeper deposit was anomalous he could have chosen to analyze another company. Perhaps he felt that an analysis of "property 1," the high-cost Wind Mountain mine, which began production in the second quarter of 1989 and is entirely on unpatented mining claims, would be used for making his point. His analysis also neglects Amax Gold's share in one New Zealand and three Canadian mines, which would reduce the effect that the passage of S. 1126 would have on the company.

The Wind Mountain mine, described by Mr. Alfers as "a rather typical gold operation," reported cash costs of $265 per ounce in 1989. This was 41 percent higher then the average cash costs of Nevada's ten largest producing gold mines, according to Randol's Mining Guide. Sleeper's cash costs were 43 percent lower than the average. Of the ten mines, only American Barrick's Goldstrike mine, the largest known gold deposit in the country, had higher cash costs. In short, Wind Mountain's 1989 performance, described by Mr. Alfers as "typical," is roughly as unusual as Sleeper's, described by Mr. Alfers as "extraordinary."

The unusually high costs of the Wind Mountain operation were due in part to the fact that the mine began producing in 1989. By the second quarter of 1990, according to the company, the mine's cash costs had fallen to $187 per ounce, and total costs to $298 per ounce. Using this more representative figure in the stand-alone study and holding everything else the same shows that even by itself Wind Mountain could have made a profit in 1989 under S. 1126, had it not been handicapped by higher costs resulting from the fact that it was a brand-new operation. Giving an analysis of the effect of S. 1126 on Wind Mountain mine's 1989 performance because it "may be more typical of the impact of S. 1126 on the moor companies" is misleading.

CLOSING COMMENTS

S. 1126 is an effort to eliminate some of the grossest deficiencies of the Mining Act of 1872. It would require mining companies to pay the public for the right to extract minerals from public lands. Mr. Alfers's flawed and misleading analysis should not confuse the Subcommittee. The current royalty of zero represents an insult to the taxpayers of America. Ending this antiquated corporate giveaway should be a high priority for the U.S. Congress.

Granada Hills, CA, September 19, 1990.

Committee on Energy and Natural Resources,
Subcommittee on Mineral Resources Development and Production, U.S. Senate, Washington, DC.

Re: S. 1126

GENTLEMEN: As an individual who has been active in the minerals and natural resources industries for over thirty years, I submit this letter for the subcommittee record in opposition to the above cited bill. S. 1126 would establish a Mining Law of 1989 which I oppose as a bill which would have serious effects on the domestic mining industry and the US economy which is becoming more dependent upon foreign sources of natural resources and foreign sources of manufactured products.

Currently under existing law, individuals and companies are able to explore for mineral deposits on public lands and obtain title to verified finds. Under S. 1126 the exploration efforts would incur high and unreasonable costs to operate in public lands. It imposes high royalty obligations while eliminating the opportunity to gain title to the minerals deposits. These changes would make US minerals more costly and less competitive with foreign sources of materials.

We urge your committee to vote against the implementation of S. 1126 and to endorse the existing Law and regulations. The proposed changes go too far and should not be enacted.

Very truly yours,

SHERRILL H. HOUSTON.

BARRANCA RESOURCES,
Golden, CO, September 17, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

Re: S. 1126, "The Mining Law of 1989"

DEAR SENATOR: I had the privilege of testifying at the Subcommittee hearing of June 7, 1989. I find it necessary to elaborate on my testimony of that date having to do with royalties. Please enter this letter into the record of the hearing on "The Mining Law of 1989," September 13, 1990.

Because of the geological distribution of the size and richness of deposits the largest population of deposits are marginally economic; a uniform system of royalty imposed on some perception of a typical deposit will inevitably tax most deposits to death. Royalties paid to individual land holders by the mining industry are negotiated on a case by case basis. The amount of the royalty offered varies greatly and is based on the geologist's perception of the potential economics of any deposit likely to be found in that particular geologic environment. A uniform royalty assessed by the government ignores the variability in the spectrum of values that deposits are sure to have. Accordingly, a uniform royalty is bad public policy. For elaboration please see the written testimony submitted by the Minerals Exploration Coalition at the hearing on the Mining Law of 1872, June 7, 1989.

I must take issue with a suggestion made by the American Mining Congress in its testimony at the hearing on September 13, 1990. The American Mining Congress represents the production end of the mining business; its representatives have little appreciation for the risks involved in exploration. They suggest that ". . . if a royalty is to be imposed it should apply only to new operations . . ." I strongly oppose this for the following reasons:

—Any royalty applied to new deposits deals a crushing blow to exploration on public lands. The discovery and development of new deposits is the most difficult and riskiest part of the mining business. The costs of bringing a deposit to the point where a production decision can be made have risen by a factor of ten in the last decade. The costs have risen mainly because of the large resource that is now devoted to compliance with permitting and environmental regulations, but lately there is an additional cost. As the press perpetuates fear propagated by the anti-mining community, exploration geologists and miners are more and more confronted with costs of public education, particularly in these days of "Not In My Backyard" attitudes.

—The imposition of a royalty on production from newly found deposits will discourage investment in their development. Included in the population of deposits not developed are some that after development might prove larger than first thought and so may make a significant contribution to the national wealth. Some mines in the Carlin district in Nevada are notable examples.

—Investment in risky exploration and pre-development must be encouraged and not discouraged; otherwise, resources will be lost and the industry will wither as deposits currently in production are mined out. This would be another case of the export of an industry, its technology, and its brains.

—Please keep in mind that any discouragement of exploration by the addition of economic burdens (royalty) is compounded by the drastically reduced area of land which may be explored. Wilderness withdrawals continue unabated, and with them the reduction of opportunity for exploration success. Please do not further compound the reduction of opportunity by the imposition of royalty on new deposits.

No uniform royalty based on gross revenue recognizes the variability in return between deposits. If this country wants any but the very rare rich deposits to be mined, the idea of a royalty must be dropped altogether.

I hope you will consider these facts in your deliberations. If you have questions or require elaboration, I am at your service.

Sincerely yours,

GEOFFREY G. SNOW, Ph.D.,
Partner.

STATE OF CALIFORNIA,
STATE LANDS COMMISSION,
Sacramento, CA, September 17, 1990

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Senate Committee on Energy and Natural Resources, Washington, DC.

DEAR MR. CHAIRMAN: Thank you for the invitation to comment on Senator Bumpers' legislation to reform the Mining Law of 1872, S. 1126, which is before the Senate Subcommittee on Mineral Resources Development and Production. We strongly support passage of this legislation, and commend Senator Bumpers' perseverance in pursuing this matter. Enactment of S. 1126 would bring about a much more equitable and environmentally sound system of managing federal resources, and would enhance rather than undercut California and other states' mineral land management policies.

Inadequately regulated prospecting and mining on federal public lands is not in the public interest. In California, the environmental and fiscal consequences have been unacceptable, and swift action to rectify these practices is imperative. During the decades of debate over reform of federal mining policy, toxins like cyanide have been seeping from open mining pits into our aquifers, and a legacy of scarred landscape has been left for future generations. Wildlife has been killed off by drinking from toxic ponds created by the mining process. And because pollution knows no boundaries, the goals of more stringent California environmental laws have been undermined by lax environmental provisions in the 1872 law.

The economic losses to federal and state government under current law are equally staggering. Inadequate federal bonding requirements have left the federal government holding the bag in instances of severe environmental damage. Valuable public lands are transferred to private ownership at extremely undervalued prices; the standard price for an acre is $2.50 for land, which in some cases is valued at thousands of dollars an acre. Domestic and foreign mining interests have made millions from public lands without paying one cent in royalties to the federal treasury. These irresponsible practices have been accelerating; in the last four years alone, mining on federal public lands has doubled. Given the gravity of the federal deficit and state fiscal crises, current federal mining policy takes on an even more serious dimension.

Strong arguments for reforming federal mining law have been made for decades. Twenty years ago in a landmark analysis of the nation's land assets, the Public Land Law Review Commission recommended that "Existing Federal systems for exploration, development and production of mineral resources on the public land should be modified." (Recommendation 47, *One Third of the Nation's Land.*) The commission also said "royalty should be collected [by the government] on production both before and after patent." It also suggested that mineral operators be given the option of acquiring title or a lease to the land only "*. . . when they are willing to pay the market value of the surface rights*" (emphasis added).

Congress' own General Accounting Office (GAO) has issued a series of reports on the inadequacy of the 1872 Mining Act. Most recently, the GAO recommended amendments to the 1872 Mining Law to require rental or a holding fee instead of the work requirement. It also recommended the elimination of the patent or transfer of ownership to the locator.

Earlier this year, *The Sacramento Bee* published a series of articles entitled "Golden Land, Shattered Earth" exposing egregious mining practices on federal lands in California (copy enclosed).

California operates under provisions similar to those proposed in S. 1126 and we have found them to strike a healthy balance between adequate protection of the public trust and responsible financial management of valuable resources for all parties. In California, prospecting for and production of minerals is allowed only with a state lease or permit. These are issued only after a complete review of environmental impacts under provisions of the California Environmental Quality Act.

In addition, a minimum ten percent royalty is required for all material taken from state lands. An annual rental fee is also required. California also retains title to the land used for mineral extraction. The surface of the land may be sold at fair market value, but the minerals may not be sold. Minerals may be leased for royalty payment as outlined above. Most other western states also assess a royalty for removal of state-owned minerals. In the absence of an outright sale of the federal interest for fair market value we believe that a royalty must be imposed on the value of the minerals removed from federal lands.

Finally, California has adopted a fee structure that encourages responsible mining activity and reflects the market practices used by private land owners and most state land offices. We also strongly support earmarking a portion of the proceeds from the fees to go to the managing federal agency for enforcement. These are two important elements of the needed reform. Otherwise, the present economic and environmental abuses will continue and no one will be available to verify payment.

In reviewing S. 1126 we would suggest a modification of the royalty provisions. The bill's proposed general royalty rate of eight percent may not be in the best interest of the public because it locks the government into one rating system. Many western states charge a royalty which varies according to the mineral being extracted. Some use a sliding scale royalty with the percentage depending upon the mineral and volume produced. A gross royalty is relatively easy to audit and enforce compared to alternatives which allow deductions for various expenses. We recommend considering these more flexible alternatives to the bill's current system.

Under the above-mentioned practices, California and private interests have successfully shared in the benefits of mineral extraction while ensuring the environmental preservation of state public lands. We strongly believe these practices, which are very similar to those in S. 1126, are easily adopted at the federal level.

We urge the subcommittee to approve S. 1126. The time is past due to reverse irresponsible fiscal and environmental management of federal public lands. Senator Bumpers should be commended for taking the leadership role on this issue and we hope you will act favorably on his prudent changes to the law.

Thank you for the opportunity to present our views to the committee.

Sincerely,

GRAY DAVIS, *Chairman*,
California State Lands Commission;
State Controller

LEO MCCARTHY, *Member*,
California State Lands Commission;
Lieutenant Governor

Tucson, AZ, September 4, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR SENATOR BINGAMAN: This letter is sent to voice my opposition to the fee and royalty provision of Senate Bill, S. 1126, and to offer instead support for the retention of the existing Mining Law of 1872.

The 1872 Mining Law has worked remarkably well for over 100 years. It has provided our nation with much-needed natural resources during the development of the country. During times of crisis and war, our mills and factories have never been found wanting for the metals and products that were fabricated into weapons to support our armed forces.

Those people who want to repeal the current mining law simply do not understand mineral economics and the manner in which the Mining Law of 1872 has helped this nation.

The law that has helped so many should not be repealed because of the ignorance of a few.

Please include this letter in the Congressional hearings record coming up in September. Thank you very much.

Yours very truly,

S.A. ANZALONE.

INDEPENDENCE MINING COMPANY INC.,
Reno, NV, September 4, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The purpose of this letter is to express concern regarding S. 1126 and its effect on the General Mining Law. Independence Mining Company strongly opposes this Bill.

The domestic mining industry is an important part of the Western United States' economy, as well as the total U.S. economy. The U.S. Bureau of Mines estimates that in 1989 non-fuel mineral activity accounted for approximately $5.2 trillion of the Nation's gross national product. Without doubt, the General Mining Law has significantly contributed to this favorable economic situation.

One important aspect of the Mining Law is the assurance to a mining claimant that access to and ownership of a mineralized area is sufficiently secure to justify the significant investment necessary to bring a mine into production. The Bill eliminates the right to patent the surface of a mining claim, and therefore significantly weakens this type of security of land tenure.

The patenting process has been strongly attacked by the General Accounting Office, the media and the environmental community. It is important to recognize that the Mining Law does not allow the mining claimant to purchase just any land for $2.50 or $5.00 an acre. A patent to the land can only be obtained if a discovery of valuable minerals has been made and only if it can be proven that these minerals exist in economic quantities. The only way that it is possible to discover economic deposits of minerals is to spend a great deal of money—typically several millions of dollars. This certainly has been Independence's experience in bringing into production the Jerritt Canyon and Big Springs mines located in central Nevada. The cost of acquiring a patent to any or all of the mining claims and millsites associated with these projects will far exceed $2.50 an acre. In light of this fact, the patenting aspect of the General Mining Law is not a process that allows the public lands to be freely privatized, as has often been portrayed.

In addition, based on various misinformation which has been circulating, you may be under the impression that every mining claim is becoming a private cabin site. This is simply not true. The Bureau of Land Management and the Forest Service has estimated that of the total number of approximately 1.2 million claims on public lands only approximately 2,000 claims are burdened with cabins or other structures that are not authorized. This amounts to less than 2/10th of one percent of all claims containing unauthorized facilities.

This number pales in comparison to the number of non-mining related occupancy trespasses. The Forest Service, for example, estimates 50,000 such non-mining related trespasses on national forest lands alone. The problem of unauthorized occupancy on mining claims, as it is on other federal lands, is a problem of administrative management by the agencies, not a problem with the Mining Law, and particularly not with the patenting provisions of this law.

The American Mining Congress' declaration of policy, which Independence Mining Company supports, expresses the view that the General Mining Law governing disposal of hardrock minerals on public lands is not in need of revision. This position is based on AMC's conclusion that existing law more than adequately meets the four criteria that are essential to any mineral tenure law. These criteria are:

1. there must be non-exclusive access to search for minerals on public lands;
2. once detailed exploration is focused on a well-defined area, exclusive exploration rights must be available;
3. those who discover valuable minerals must have an exclusive right to develop the minerals they have discovered; and
4. where commercial quantities of minerals are discovered, tenure must be secure under terms reasonably set in advance.

The existing mining law meets these four criteria and has done so for 118 years. During that time, the nation has undergone dramatic changes in minerals requirements and market conditions. From precious metal vein deposits, to high grade base metal deposits, to meeting the national need for uranium, to the porphyritic copper and molybdenum deposits, to the broadly disseminated gold deposits, the Mining Law has accommodated the challenge. A broad body of judicial interpretation and administrative law has left virtually no question unanswered with respect to the Mining Law. It is a law that addresses land tenure and nothing else and, accordingly, it has accommodated changing social policy goals. In addition, it is important to keep in mind that mining activities on public lands are subject to the full scope of environmental protection laws.

In addition to the Bill's effect on patenting, Independence strongly objects to the imposition of the $100 per claim recording fee and the eight percent royalty. Unlike oil, gas and coal production, hardrock mining cannot simply pass on to the consumer such additional costs. The reason for this is that the world market price more clearly determines the price of many of these commodities.

Furthermore, Independence, like other mining companies, often relies on the independent prospector for the development of attractive mineral targets. The proposed fee would cause many of these prospectors to be unable to continue to work in the hardrock mining industry. With specific regard to the royalty, this economic burden would cause otherwise mineable reserves to become uneconomic, thereby resulting in a waste of the resources of our public lands. Finally, the existing reclamation laws in the western states adequately provide for protection of the public lands and additional reclamation and bonding requirements as provided by the Bill are unnecessary.

For the reasons specified above, Independence opposes enactment of S. 1126. We request that these comments be included in the hearing record for S. 1126.

Sincerely yours,

R. Blain Andrus,
General Counsel.

Radium Springs, NM, September 1, 1990.

Hon. Jeff Bingaman,
Chairman, Subcommittee on Mining, Committee on Energy and Natural Resources.

Dear Senator Bingaman: I wish to submit this letter as testimony for the written record on your hearings in regard to changing the mining laws, in the hope that these factors will be considered:

The Mining Law of 1872 is an equal opportunity and free enterprise law. Every American citizen has the same chance to find, claim, and develop valuable minerals on public land. This law is uniquely American, in contrast to Spanish tradition, which was government monopoly. If you want to see a contrast, look at thriving Canada which followed the American tradition, and then look at Mexico, which followed the Spanish tradition. We don't want the Mexican kind of mining in this country.

Anti-mining interests are spreading the lie that miners can buy valuable government land for $2.50 per acre. Sure. And you can win the Indy 500 by simply driving around the track. Of course, there may be a few other requirements in each case. Why is there any land left? How much land was acquired last year by individuals?

The facts of the matter are that federal bureaucrats deny, delay, and defeat efforts of individual miners to patent their claims. Big companies do not seem to have much trouble. I suggest that your committee investigate who has been getting patents, and whether or not they were individual miners or big companies with influence. It is quite possible that you will find abuse of mining laws by non-miners.

I have been prospecting in the La Plata mountains of Colorado (San Juan National Forest) for 27 years. I have invested a lot of my time and my money in that 27 years. No government subsidies or handouts here. I went in where others have failed, and with perseverance I hope to finally ship some ore this summer. If the socialistic Bumpers or Rahall bill becomes law, I will be defrauded by the members of Congress.

The 1872 Mining Law is an inspired piece of legislation. It has inspired people like me to invest in developing minerals on public land. How amazing it is that the law encourages development of minerals that were not even dreamed of in 1872. Free enterprise must be free of government interference to achieve success, and if the Bumpers bill passes, the American tradition of free enterprise in mining will disappear.

If the 1872 Mining Law is repealed it will cause great financial damage to me and many of my friends. If you are insensitive to that, you should certainly consider the chilling effect it will have on future development by other prospectors.

I urge you to defeat this misguided proposed Bumpers bill. The Bumpers "solution" is worse than any problem we have.

Sincerely,

MYRON CHERRY.

Golden, CO, September 12, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR SENATOR BINGAMAN: I oppose S. 1126 and support the existing 1872 Mining Law. The desire to change the existing Mining Law is based largely upon ignorance of the mining business. I'm the fifth generation of my family in the mining profession and am darn tired of being labeled as uncaring towards the land and environment.

If you really want to improve our country's land issues:

1. Insure the federal, state and local governments comply with the same environmental laws as industry.
2. Sensible multiple use of land is crucial and must be endorsed by both House and Senate.
3. Eastern Congressmen must understand that western resources provide quality jobs and economic growth.
4. Please let the "Massachusetts Miracle" of economic growth stay on the east coast.

Please include this letter in the hearing record.

Sincerely yours,

THOMAS G. WHITE.

DELORES MINE,
Rescue, CA, August 27, 1990.

Hon. JAMES A. MCCLURE
Chairman, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR SIR: Please include this letter in the hearing record opposing the fee and royalty provisions of S. 1126.

With the current crisis in the Persian Gulf, to try to eliminate the current mining law would be very hazardous to our National defense and the security and economy of our Nation.

It would bankrupt me and almost every small mine operator that I know of. This in turn would kill the incentive for prospectors and small mine operators to develop new ore bodies. It is the independent prospector or small mine operator that does this.

For the Senators or Congressmen to attempt to do away with the current 1872 mining law and its principal amendments is in direct violation of the law, as it has been written and passed, quote "30 U.S.C. para. 612(b), which states; "under the multiple Use Act or Surfaces Resource Act of July 23, 1955, The United States, Its Permittees and Licensees, are prohibited from materially interfering with prospecting, mining, or processing operations or uses reasonably incident thereto." In the language that this is written in and has become law, it is criminal and unconstitutional for any lawmaker, senator, congressman or judged to change or act against it.

The U.S. Constitution says "We the people are boss," not a few people who are Senator or Congressman who are trying to please certain lobbyists. Art VI par. 3 says, "The Senators and Representatives . . . shall be bound by Oath or Affirmation, to support this Constitution: . . . The powers of Congress are listed mostly in Art. I, Sec 8. The Congress also gets its authority from and is bound by the Constitution.

I oppose all wilderness acts, as they take the control of the land and all of its natural resources, oil, gas, timber, agriculture, metalic and non metalic minerals out of the control of "We the People".

Sincerely,

ARTHUR H. FARTHING.

ASARCO INCORPORATED,
EXPLORATION DEPARTMENT,
New York, NY, August 31, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

Re: S. 1126, Fee and Royalty Provisions.

DEAR SENATOR BINGAMAN: This letter is to record my strong opposition to the fee and royalty provisions of S. 1126. These provisions are so steep as to eliminate the possibility of holding a submarginal mineral deposit for a long period of time until such time as metal prices might improve to the point where that deposit would become mineable at a profit. Requiring mining companies to drill and then drop mineral deposits would serve to reduce the incentive to explore because the very high risk expenditures of exploration would be even less likely to bear fruit over the long run. Further, it would force mining companies to drop submarginal deposits they had found and increase the possibility that foreign companies, who already control a substantial amount of this country's mineral production, would control still larger amounts, a situation which I do not believe any sensible American believes is in the best interests of the citizens of this country.

I recommend that the existing assessment obligations and the Mining Law of 1872 be retained, and I request that this letter be included in the records of the hearings on S. 1126 to be held on September 13, 1990 by your committee.

Very truly yours,

FREDERICK T. GRAYBEAL,
Chief Geologist.

Grand Junction, CO, September 3, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR SENATOR BINGAMAN: The Hardrock Miners always claim that toughening the Mining Law will result in the demise of the domestic mining industry and the people promoting change always counter that the oil, sand and gravel and coal people said the same thing and they have survived. The following chart shows that the Hardrock Minerals Industry has many problems that the leasable minerals do not.

DIFFERENCES BETWEEN LEASABLE MINERALS AND HARDROCK MINERALS

	Oil	*Coal*	*Sand & Gravel*	*Hardrock*
1. Exploration expenses	Great	Low	Low	Great.
2. Type of deposits	Homogeneous	Homogeneous	Homogeneous	Not homogeneous.
3. Development expenses	Low to medium.	Great	Low	Great.
4. Extraction expenses	Low	Great	Medium	Great.
5. Cost to transport (finished product to market).	Medium	Great	Great	Low.
6. Price fixed on	World market	Regional market.	Local market	World market.

EXPLANATION

1. Exploration expenses.—Since many hardrock deposits are small and irregular, finding them is difficult and expensive.

2. Type of deposits.—Hardrock deposits are not homogeneous. The tenor or grade of the ore is not the same throughout the deposit—it is just an educated guess what really is there. The deposits of oil, coal, sand and gravel are homogeneous.

3. Development costs.—Hardrock development and extraction costs are great, especially in underground mining. That is why there are fewer and fewer new underground mines in the United States today.

4. Extraction costs.—See 3 above.

5. Transportation costs.—The cost of transporting the finished hardrock product to market is a small percentage of the market price. Example: Cost of shipping a

pound of vanadium from the Union of South Africa or China is small compared to the selling price of a pound of vanadium. Not so with coal or sand and gravel.

6. Price.—Because of (5) above the price for hardrock minerals is set on the world market, not locally like sand and gravel.

Hardrock mining is a very speculative business. S. 1126 will definitely diminish the domestic mining industry and force the United States to depend on other countries for the minerals . . . losing not only control of our strategic mineral supply but also exporting a large number of jobs in the process.

Sincerely,

EDWARD M. LIPPOTH.

STATE OF ARIZONA,
DEPARTMENT OF MINES AND MINERAL RESOURCES,
Phoenix, AZ, August 27, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR CHAIRMAN BINGAMAN: It would take a very long letter to respond to and prove wrong all of the criticisms that have been expressed over the past year or so about the "1872 Mining Laws". A multiplicity of "environmental" groups have joined the Rahall-Bumpers bandwagon to do away with this body of law that has made it possible for America to develop and use her natural resources to become the leading nation of the world.

It is easy to understand why the Sierra Club, Mineral Policy Center et al have joined this effort. They want to ban mining on public lands, and save it all for whatever esthetic use they in their "superior" wisdom deem suitable.

No one has suggested an alternate source for the minerals necessary to maintain civilization, except to say import. That's nice; we import natural resources and export all of our environmental problems instead of solving the latter. The side benefit of this is that there will be another Saddam Hussien out there to blackmail us for the copper we need just like oil.

The point of this letter is finally to emphasize that, while there are abuses of the system set up by "1872 Mining Law" by greedy real estate brokers and similar speculators, the law has operated very well for 118 years, is still functioning well. Yes, correct the abuses, but at the same time keep the broad provisions of the law intact.

In respect to the environment, there is a surplus of regulatory authority in BLM, The USFS, EPA and the various mining states to protect the environment and protect it well. Very few mining operations come about in this day without extensive environmental planning and permitting.

I urge you to withdraw your efforts to destroy this body of law that is so important to the nations' survival.

Yours truly,

LEROY E. KISSINGER,
Director.

GOLDSTAKE EXPLORATIONS (SD), INC.,
Spearfish, SD, August 27, 1990.

Hon. Jeff Bingaman,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR CHAIRMAN BINGAMAN: On behalf of the management and Board of Directors of Goldstake Explorations (SD), Inc., I wish to express in the strongest terms our opposition to the fee and royalty provisions proposed to be enacted by bill S. 1126.

We feel that the 1872 Mining Law is fair, equitable, and has been a major impetus fostering the development and maintenance of a viable minerals production industry in the United States. We feel that the fee and royalty provisions proposed to be established by bill S. 1126 would hinder the future development of our industry. In view of the present oil crisis, the United States should do everything it can to bring America ever closer to self-sufficiency in minerals production. The passage of these measures would be a step backwards, from our perspective.

Would you please ensure, Chairman Bingaman, that this letter be included in the hearing record. Thank you.

Yours sincerely,

RICHARD R. REDFERN,
Vice President.

San Diego, CA, August 24, 1990.

Hon. JAMES McCLURE,
Hart Senate Office Build., Washington, DC.

DEAR SENATOR McCLURE: As a miner/prospector, I oppose the proposed changes in the 1872 Mining Law by Bumpers Bill, S. 1126.

The 1872 Mining Law as written needs some minor changes not full revision. The problems with the current law is that the BLM doesn't do their job in enforcing it. Because of their lax enforcement you get a lot of claim overfilling and fake assessment forms showing nonexistent work being performed on the mining claims. Finally when an honest miner starts to work his claim—usually the policies of the Forestry Service and/or BLM makes it hard for that person to begin mineral production. The problem is that the policies are not uniform—each district has their interpretation of the Mining Law (this can change with each new supervisor). Therefore because of this lack of enforcement and policy changes there is a lot of inactive claims that make the average person feel that there is abuse of the 1872 Mining Law.

Finally the proposed law greatly reduces mineral exploration by removing the monetary incentive in finding new mineral deposits. Remember 80% of all the big mineral deposits currently being worked were found by the small scale miner. By voting for this bill you are eliminating the small miner/prospector.

Sinerely yours,

JOSEPH JOHN JOHANEK.

BRUSH WELLMAN INC.,
Elmore, OH, September 11, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR SENATOR BINGAMAN: I have been informed that there will be a hearing on September 13, 1990 on the fee and royalty provisions of S. 1126. We oppose the enactment of S. 1126, and we support the retention of the existing Mining Law and the location of mining claims. If S. 1126 passes, Congress will potentially restrict investment by legitimate mining concerns by introducing a degree of uncertainty that does not currently exist into long-range business plans. Will you please include this letter in the hearing record.

Brush Wellman Inc. is the free world's only fully integrated supplier of the metal beryllium, its alloys, and compounds. These materials are irreplaceable in the certain strategic nuclear defense applications. Over seventy percent (70%) of our production is for high performance application in computers, microelectronics, automobiles, petrochemical exploration and other major business segments that are critical to the growth of our country.

Although we operate mines on unpatented mining claims in the Topaz-Spor Mountain region of Utah, we are not a mining company, per se. Rather, we are a producer of highly-engineered materials that has, for strategic reason, integrated backward into mining. Prior to 1969, the world's supply of beryllium was extracted from beryl, a mineral which was imported from Brazil, Zimbabwe, South Africa, India and the PRC. While extensive beryl deposits also exist in the USSR, there is only limited beryl on the North American continent. Because of the uncertainty of the beryl supply, the Brush Beryllium Company made a "bet your company" decision a number of years ago to develop the technology for mining and extraction of beryllium from low-grade Utah ores.

There are four basic criteria that a mining (mineral tenure) law should have. Brush Wellman's experience toward achieving these criteria is as follows:

First, there must be non-exclusive access to search for minerals on public land. Brush Wellman and other companies have investigated an area well over 200 square miles to locate beryllium mineralization.

Second, once detailed exploration is focused on a well-defined area, exclusive exploration rights must be available. Brush Wellman now has rights to over 1,000 claims, covering 13,000 acres as a result of this exploration. Brush Wellman has spent millions of dollars in exploratory development.

Third, those who discover valuable minerals must have an exclusive right to develop the minerals they have discovered. Brush Wellman has successfully operated for 20 years deriving 75% to 100% of the critical material beryllium from these domestic ores.

Fourth, where commercial quantities of minerals are discovered, tenure must be secure under terms reasonably set in advance. Based on more than 20 years of data and experience, we are currently pursuing patents on 100 to 150 claims. The total cost to complete this process is estimated to be several millions of dollars, thus belaying the contentions of those critical of patenting that patenting amounts to a "give away" of the public lands.

Currently, Brush Wellman's use of these public lands contributes hundreds of thousands of dollars to the State of Utah annually based on land occupancy taxes, state income taxes and property taxes. These revenues go directly to support the social infrastructure of the area. Furthermore, we provide high-quality job opportunities for over 100 people in both the mining and milling operations.

Concern has been expressed about instances where companies had turned large profits by converting patented mining claims to uses other than mining. I agree that such practices are abhorrent, but should be dealt with by the existing law. Abuses of social security, public housing, and other public welfare laws by a relative few have not resulted in their repeal. Likewise, abusive and illegal use of public lands by a few irresponsible developers should not be the basis for stopping a process which has served the public good as well as the mining industry for many years.

Within S. 1126, three things that would strongly impact Brush Wellman are the imposition of leasing-type fees, royalty payments and other charges, the imposition of unnecessary environmental regulation, and the loss of patenting rights to both the surface and the minerals.

As written, S. 1125 would impose a variety of unnecessary fees, royalties and charges. These additional costs will place an additional financial burden on the Company, thereby reducing the ability of Brush Wellman to compete world wide in the production and marketing of its products. The proposed royalty is especially burdensome and inappropriate. The net return to the Treasury would be small. The public receives a better return under the current law through greater U.S. mining production and lower cut-off grades. The Bill also contemplates an acceleration of the proposed fees and charges, so that the effect will become more burdensome in the future.

S. 1126 imposes an unnecessary and duplicative burden on the mining claimant, in the area of environmental preservation and reclamation. The present Mining Law doesn't need provisions to protect the environment, because these requirements are already covered by numerous other federal and state laws. The mining industry (and Brush Wellman's operations are no exception) is among the most heavily environmentally regulated of all industries. In addition to laws prohibiting air, water and land pollution, Brush Wellman is required to reclaim the lands covered by its mining claims under both the Utah Mined Land Reclamation Act and the BLM's surface mining regulations.

S. 1126 would take away Brush Wellman's right to patent the surface and minerals. Patenting is an essential part of assuring that Brush Wellman has good title to the minerals which it has worked so diligently over so many years to develop, as well as good title to the surface necessary to conduct its operations. Brush Wellman expects to be mining for many decades to come, and for that reason needs to look at a "100 year" mining horizon. Elimination of patenting could threaten Brush Wellman's continuing ability to conduct its operations and obtain additional financing as may be needed in the future.

Very truly yours,

HUGH D. HANES,
Vice President/General Manager.

CORONA GOLD, INC.,
Sparks, NV, September 10, 1990.

Hon. JEFF BINGAMAN,
Chairman, Subcommittee on Mineral Resources Development and Production, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR SENATOR BINGAMAN: I am writing to express my concern, and that of Corona Gold Inc., regarding the proposal to repeal or substantially revise the General Mining Law. This law has served and continues to serve the nation well. Any substantial changes will certainly have serious repercussions on the mining industry and will serve to make the United States more dependent on foreign sources for the natural resources which are required to maintain our standard of living and economic vitality.

I am certain the current crisis in the Middle East should be sufficient to point out the serious economic and political problems associated with being dependent of foreign sources of supply for strategic natural resources.

Please include this letter in the hearing record on S. 1126.

Respectfully,

CY L. WILSEY, CPL,
Land Manager.

CRS Congressional Research Service • The Library of Congress • Washington, D.C. 20540

Memorandum September 8, 1990

TO : Senate Committee on Energy and Natural Resources

FROM : Salvatore Lazzari
Specialist in Public Finance
Economics Division

SUBJECT : Royalties from the production of hard minerals on Federal lands and the tax treatment of the hard minerals industry

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This memorandum responds to your request for information concerning possible Federal royalties from hard rock minerals. More specifically, you are concerned with two questions: (1) Whether there is an economic rationale supporting the position that the hard rock mineral industry should pay royalties to the Federal Government; and (2) What should be the basis on which royalties would be paid to the Federal Government if the Congress adopted this approach? In addition, you requested that we describe the current Federal tax treatment of the hard mineral industry.

The first section provides a brief history of mineral leasing system and royalty payments requirements. The second section discusses, as you requested the economic rationale for the payment of royalties on hard minerals. The third section addresses the question of the appropriate basis, under standard economic principles for payment of royalties to the Federal Government as landowner and compares royalties based on market value with alternative criteria such as royalties based on gross income from depletion, and net return. The fourth section discusses some expected economic effects of royalty-free provision of public lands. The fifth and final section examines the Federal tax provisions of the current Internal Revenue Code that affect the hard rock minerals industry.

The question of payment of royalties from hard rock mineral production on public lands is part of the broader debate relating to reform of the Mining Law of 1872. This response is tailored to your request and does not address arguments or present analysis relating to the viability of the hard rock mineral industry or to the competitive international market in which they operate.

HISTORY AND ECONOMICS OF FEDERAL ROYALTIES

Royalties on Federal lands have become an important public issue relatively recently. Historically, the Federal Government gave the lands away to the private sector in exchange for their development. For coal and certain other minerals, the Federal Government began by selling the lands outright instead of leasing them; the question of royalties did not arise.

Beginning in 1920, a royalty system was instituted for coal and certain other minerals (but not hard rock minerals). Instead of selling the land, the Government leased the mineral lands and received from the developers a royalty and an annual rental payment per acre of leased land. Originally coal royalties were stated as a fee per ton (a fixed royalty), but this was changed in 1976 when the Government altered the lease payments from a fixed royalty to an ad-valorem royalty. Under an ad-valorem system, royalties are based on the value of the mineral, which typically are at least 12.5 percent of value. This kind of royalty payment system is the rule in private sector leasing arrangements, and is now the approach used by the Federal Government in leasing coal, and oil and gas. It entitles the landowner to a specified fraction (conventionally, 12.5 percent) of the value of the total production of the mineral, free of expenses, produced during the term of the lease. Together with the lease bonus and the delay rental, additional payments required by the landowner to release the land for mineral development, the royalty serves as a proxy for the payment of economic rent for the services of land.

In contrast to this, the hard rock minerals industry is not required to pay royalties or other rentals to the Federal Government. It also is not required to bid (i.e., pay bonus bids in a competitive bidding process) for the development rights. This again is not the case for the energy minerals leasing process, which involves bonus bids and other rental payments. The law allows businesses to mine hard rock minerals and certain other minerals free of charge for the use of Federal lands from which minerals are extracted and sold. Indeed, the law also permits these companies to buy the land for a small fee per acre. The law which underlies this policy is a 118 year old Act -- the General Mining Law of 1872 -- that governs the mining of hard rock minerals. The purpose underlying this total forgiveness of royalty payments and other rental payments was to encourage the development of the domestic mining industry. Thus, despite the evolution of the system for paying royalties on coal, oil and gas, and certain other minerals, the location system for the hard rock minerals industry -- involving no royalty payments or any other type of rental payment -- has remained essentially unchanged since 1872.

Thus, presently the hard mineral industry pays no royalty to the Federal Government for the privilege of extracting resources from Federal lands. This differs from the Federal requirements for coal and oil and gas, where the mineral producer bids for the rights to mine the property then pays royalties (usually an ad-valorem royalty of 12.5 percent) on the resulting output.[1] It also differs from the leasing arrangements in the private sector, where hard mineral producers pay royalties and other rent payments to the landowners if the mineral producer is to have access to the mineral properties.

ECONOMIC RATIONALE FOR THE ROYALTY

The original concept of a royalty signified the monarch's share of the production, in kind, of natural resources situated on the monarch's land. To illustrate, one deer out of five bagged in the king's forest or one bushel of corn grown on the king's land constituted payment by the hunter or the farmer to the king for the privilege of hunting in his forest or farming his land. The economic concept of a royalty signifies a part of the rental payment in kind or ad-valorem for the services from land. Compensation to the landowner for the privilege of using the land can take on many forms but it is usually a rent. Landowners -- private and public -- usually receive compensation in the form of a constant annual rental payment that reflects the fact that the supply of land is fixed.

Likewise in mineral production and other natural resources production, a royalty signifies a rental payment in terms of the mineral output between the mineral producer and the mineral landowner. It is a factor payment, a payment (the royalty) to a factor of production (the land) in exchange for the services of the factor: a payment from producers of mineral resources to landowners for the services of land which contains a mineral deposit. The royalty is analogous to the wage rate, which is a payment for the services of labor, or the interest rate, which is a payment for the services of capital. In the case of mining, however, the amount and quality of a mineral deposit, the cost of its production, and the market price of the mineral once it is finally produced is often not known early in the process. Thus, it is difficult to determine the proper rental to charge the lessor. Because of this, the landowner requires an ad valorem royalty payment, which is based not on the number of acres of land which the producer uses but on the gross value of the output, free of production costs. The function of the ad-valorem royalty, then, is to protect the landowner against underestimation of economic rents and the producer against overestimation of those rents. [2]

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[1] The Federal Coal Leasing Amendments Act of 1976 requires "payment of a royalty in such amount as the Secretary shall determine of not less than 12-1/2 percentum of the value of coal as defined by regulation." The 12-1/2 percent royalty has been standard practice in the oil and gas business.

[2] The economics literature contains several definitions of rent, and is unclear whether the royalty is a component of rent. We adopt McDonald's definitions of a royalty as a component of economic rent and economic rent as a surplus paid to a productive factor above its opportunity cost. See McDonald, Steven L. *The Leasing of Federal Lands for Fossil Fuel*

THE APPROPRIATE ROYALTY RATE

While economic principles state that a royalty should be paid and that in the case of minerals leasing the appropriate form of the royalty is the ad-valorem type, it says little about the magnitude of the royalty -- the percent rate -- beyond that the precise rate should be determined in the market. In a free enterprise system, the market generally determines factor prices as it determines the prices of other commodities. In private leasing arrangements the market establishes the rate of royalty and the rate of other rental payments to be made by a mineral company to a landowner. In general, the Government, which is bound by minimum royalty rates when specified by statute, should receive the royalty rate determined in the marketplace.

There may be conditions under which the Government might not want to use the market established royalty rate. If there are positive economic and social effects from the use of public lands for mining, there might be an economic rationale for a lower than market rate charged the mineral producer. Presumably, this -- the stimulation of an infant industry, and the development of mineral resources -- was the rationale for the location system involving no royalties and other rent payments established in 1872. But these arguments may not be valid in today's economy. The industry is not an infant industry. And the economic stimulus to the industry resulting from royalty-free treatment is not arguably an external benefit that the Government should appropriately subsidize.

In addition, there is another side to the externality equation: external costs. It appears that many external effects associated with hard rock mineral production -- economic effects not taken into account in the normal business decisionmaking -- are net "external costs" rather than net external benefits. The external costs from hard rock mineral production are the degradation of the environment and the destruction of the landscape. Without land reclamation, there would be damage to the environment, which is an external cost to society. This is the economic rationale for the abandoned mineland reclamation fee.[3] Were this approach adopted, the appropriate Federal policy would be a tax rather a than subsidy for the use of the land.

Production. The John Hopkins University Press. 1979. pp. 25-46.

[3] Another type of external cost has been identified for coal production in underground mines addition to land degradation and environmental damage. See Surface Mining Control and Reclamation Act. Some analysts also argue that black lung disease is an external cost of coal production. This is the rationale for the black lung benefits excise tax (IRC section 4121).

In fact, the markets determine factor payments, including royalties. At the individual level the factor payment is negotiated between the business hiring the factor and the individual providing the factor services, e.g., the proper wage rate which a business pays to a worker is usually determined by a negotiation process subject to the rates preexisting in the market. This process determines the final market factor payment. Likewise, royalty is negotiated between producer and landowner, and this process of negotiations determines the market royalty rate. When the Federal Government transfers title of mineral lands to private owners, those owners may lease it to a third party with a market royalty. The Government could sell the land at market prices and forsake the royalty and it would still be ahead. Moreover, as a large landowner, the Federal Government is in a position to exert monopoly power in the factor market if it wanted to, in order to extract higher royalty rates.

Another condition under which the market determined royalty rate would not be appropriate is if the market for the leasing of mineral lands between landowners and mining companies is not competitive. More specifically, if landowners exercise monopoly power or some other type of market power, then it would be possible to extract from the mining companies higher than competitive royalty rates, which would not be in the best interest for society. In this case, the Government would want to use a lower than market royalty rate.

It appears again, however, that this condition does not hold. Any absence of competition in the hard rock mining industry is in the mineral producing sector -- the lessees -- rather than the landowning sector. An important exception to this is the Federal Government as lessor. The Federal Government owns or owned most of the land from which hard rock minerals are produced and might be in a position to take advantage of its power to obtain royalty payments above the competitively determined rates. In reality, of course, the Federal Government policy is just the reverse: the royalty rate of zero is definitely below the market determined rate.

MARKET VALUE: THE BASIS FOR ROYALTY PAYMENTS

Should royalties be based on market value, or net profits, or some other criterion? If royalties were based on less than full market value would the Federal Government be underpaid?

Economic principles suggest that, were a leasing system adopted, the appropriate royalty in the case of hard mineral production should be the ad-valorem royalty. Both the original and the economic concept of a royalty as a factor payment imply that the payment should be based on the market value of the producer's output, whether it be hard rock mineral, coal, or oil and gas. It does not make economic sense to pay an ad-valorem royalty on any basis other than market value (price). For example, if instead of payments in kind (deer or crops) the king were to be paid in money, one would expect him to receive the monetary equivalent of the value of the output. A rational king would not settle for less than what the deer or crop is worth because he could always have the deer or the crop taken to market and sold for at least market value. If he wanted less, then presumably that would have been negotiated as a smaller share (instead of 1 deer out of 5, it would perhaps be 1 out of 6). Likewise it would not be rational for a hunter or farmer to pay to the king a royalty based on more than market value. It is inconsistent with the concept of sharing and with the concept of a factor payment in a competitive market for a royalty to be based on other than market value.

ALTERNATIVE BASES FOR ROYALTY PAYMENTS

In debates over mineral leasing policy other criteria have been discussed as a possible basis for the paying of royalties. One such criterion is to use gross income for depletion purposes that is in the Internal Revenue Code. This is the gross income that a firm uses to multiply the depletion rate (for example, the 22 percent rate) in arriving at the percentage depletion allowance that is deductible on its income tax returns. Gross income for depletion purposes is defined as "the actual price for which the ore or mineral is sold where the taxpayer sells the ore or mineral as it emerges from the mine before application of any processes other than a mining process or any transportation, or after application of only mining processes, including mining transportation." Conceptually this is the same base as for the ad-valorem royalty. With some adjustments this is the definition that was suggested in an economic analysis of coal royalties. The adjustments that were recommended in this study were for externality related taxes and for State severance taxes to be deducted from price or gross income in determining the royalty payment to the Federal Government.[4] This study recommended nothing else be excluded in determining royalties.

Another criterion that has been mentioned is net profit. Here the royalty would be a certain percentage of net profit or income, which is essentially revenue less costs. Net profit is, of course, less than sales revenue by a factor of the costs of doing business. Thus depending upon the royalty rate this would lead to smaller royalty payments. If net profit were to mean net before-tax profits, then the royalty would essentially operate like a tax. This would not be consistent with mainstream economic theory that a royalty is not a tax; it is a factor payment.

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[4] U.S. Congress. Congressional Research Service. *Royalties on Federal Coal: Issues in the Treatment of Royalty Payments and Externality-Related Taxes*. CRS Report No. 250E, by Salvatore Lazzari, Duane Thompson, and Dennis Zimmerman. March 29, 1988. Washington, 1988.

ECONOMIC IMPLICATIONS OF ROYALTY-FREE USE OF FEDERAL LANDS

Foregoing royalty and other payments through the location system in effect means that the services of a factor of production are provided free of charge. In this case the services of Federal land are provided free of charge to the producer by virtue of the fact that no rent is ever collected from its use. Economically, this is equivalent to the free provision of labor or capital equipment.

Economic theory suggests that a consequence of providing factor services for free that would otherwise have economic value would be to seriously distort the allocation of resources. In particular, if a factor is provided to a firm without charge, too much of that factor would be hired and the output of the firm would exceed the socially desirable amount. Moreover, too much of that firm's good is produced and not enough of a more valuable good is provided.

The consequence of providing mining land without the payment of rent to the Federal Government is viewed by some as an inefficient use of resources. More land will be mined, and more minerals are produced, than is socially desirable i.e., the amount society is willing to pay a market price for. An excess of mineral production might take place at the expense of other goods and services that are more valuable.

Another possible implication of the location system on Federal lands is that any excess profits that may be earned by the industry in the long run are not dissipated. These profits, which economic theory calls pure economic rents, are excess returns to a resource owner above the level required to produce or supply the resource i.e., above the normal rate of return. In theory, they accrue naturally to the owner of any natural resource but they are not necessary to secure the continued supply of the resource; only a normal long run return is necessary to ensure such a supply. This is an important rationale for the payment of bonus bids and other rental payments. The theory suggests that any pure economic rent from a natural resource should accrue to society.

FEDERAL TAX PROVISIONS AFFECTING THE HARD MINERALS INDUSTRY

The U.S. hard minerals industry is, in general, subject to the same income tax laws which apply to all other for-profit businesses in the United States. In addition, there are some special tax benefits for mining in general and which are also available to the hard rock mineral industry. This section of the memoranda discusses the Federal tax treatment of the hard rock mineral industry.

GENERAL TAX PROVISIONS

Under the general provisions of the Internal Revenue Code, an income tax is imposed on taxable income (net profits, which are essentially sales revenue less costs). Corporations are taxed under the corporate income tax, which taxes income above $75,000 at the rate of 34 percent. Taxable income at or below $75,000 is taxed at lower rates.[5] Profits of noncorporate businesses -- individual proprietorships and partnerships -- are taxed at the individual income tax rates, which range from 15 percent to 33 percent. These rates were established under the Tax Reform Act of 1986 (P.L. 99-514), which greatly reduced the prior tax rates. Prior to 1986, the top corporate tax rate was 46 percent; the individual tax rates on business income prior to 1986 ranged from 11 percent to 50 percent.[6]

Another general tax provision that is important to the hard mineral companies is accelerated depreciation -- the rules that determine how much a business may deduct for the depreciation of its capital equipment and structures. This deduction is intended to provided a business reasonable allowance for the exhaustion and wear and tear (i.e., depreciation) of business property. It is analogous to cost depletion allowance for investment in a mineral deposit (as discussed below). The present depreciation treatment -- known as the Modified Accelerated Cost Recovery System -- allows producers to depreciate these costs over a period ranging from 7-15 years for equipment and 31.5 years for structures. This system also allows producers to use a depreciation method (as opposed to the recovery period) that maximizes the value of the deduction over time. This is better than the theoretical treatment, which would call for a depreciation schedule based on the actual economic depreciation, but it is less favorable than the system that existed between 1981 and 1986. The current depreciation system increases the tax value of the deduction (or equivalently, reduces the effective marginal tax rate on the income generated by the equipment). Given that hard rock mineral producers are highly capital intensive and that the equipment used (stripping shovels, drills, bulldozers, drag lines, and haulers) can cost tens of millions of dollars, the accelerated depreciation provision can be relatively important.

SPECIAL OR SPECIFIC TAX PROVISIONS

The hard minerals industry benefits from some special tax provisions --intended to stimulate the exploration and production of minerals. These provisions, which are also available to other mining industries, are the provisions to expense (i.e., deduct currently) exploration and development costs and the percentage depletion allowance.

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[5] There are two such rates: a 15 percent rate applies to income of $50,000 or less, and a 25 percent rate applies to income between $50,000 and $75,000.

[6] A mining firm could also be treated as a subchapter-S corporation. Under this tax treatment, the producer is organized as a corporate entity but the income is taxed as personal income to the shareholders.

Expensing of Mine Exploration, Development, and Operating Costs

Before a mine reaches the producing stage, there are a variety of costs associated with exploration, development, and operation that are incurred by mining companies. One important special tax break available to the hard rock mineral industry is expensing, i.e., the ability to deduct costs in the year incurred (IRC sections 616, 617(a)). Mining companies may take an unlimited deduction for domestic exploration costs incurred for ascertaining the existence and location of a mine, and for determining the quantity and quality of the deposit. The costs of exploratory drilling to ascertain the extent of commercially marketable ores are treated by the tax law as a mineral exploration cost. Expenditures made after the existence of ores or minerals in commercially marketable quantities has been disclosed also qualify for expensing. These are costs associated with bringing the mine to production. For example, the costs of constructing or sinking a mine shaft, or the costs of driving tunnels and galleries are development costs, which may be expensed. Finally, certain mine operating expenses that would usually have to be capitalized may be expensed (deducted currently) if certain conditions are satisfied: (1)the costs result in maintaining production of the mineral as the working face of the mine recedes; (2)the costs do not increase production or increases operating costs; (3)the costs do not increase the value of the mine; and (4)they restore the mine property.

Limitations: There are important limitations to these expensing provisions. First, unlike development costs and operating costs, exploration costs must be recaptured once the mine is opened and production commences, or if the mine is sold. Recapture is accomplished by either including the amount expensed as ordinary income or by subtracting it from the percentage depletion allowance. This makes it specially important for mining companies to determine when exploration ends and development begins. Second, if the taxpayer is a corporation, then only 70 percent of the exploration and development (but not operation) may be expensed; the remaining 30 percent must be amortized over five years i.e., deducted evenly over 60 months (IRC section 291 (b)). Finally, mining exploration and development costs associated with a foreign property cannot be expensed. They must be recovered over a 10-year period using straight-line amortization.

The Percentage Depletion Allowance

Once a mine reaches the producing stage, a producer may deduct a certain percentage of the gross income -- as specified by law -- as an allowance for depletion. The depletion allowance is intended to give the mineral producer a deduction for the depletion of the investment in the mine. This deduction is intended to account for the loss (depreciation) of capital, to reflect the physical and economic depletion of the mineral reserve as the mineral is being extracted (i.e., the wasting of the asset). It is analogous to the allowance for depreciation of equipment and structures that is available to all businesses. In theory the depletion allowance should be based on the actual investment cost of the mine, and the annual deduction should be based on the actual output of the mine (its actual rate of depletion). This is called cost depletion. Instead the Federal tax code permits companies to deduct percentage depletion. The percentage depletion allowance permits a mineral producer to deduct a certain percentage of revenue (called gross income in the tax law) for the exhaustion of the mineral deposit (IRC section 613). In the case of mineral properties, a percentage depletion allowance is also provided for lease bonuses and advance royalty payments, whereas for oil and gas and geothermal properties this provision is not available. Percentage depletion rates range from 5 percent for stone and clay to 22 percent for uranium and beryllium. Most of the hard rock minerals have a depletion rate of 22 percent, and several have either a 15 percent or 14 percent rate.

Table 1 shows percentage depletion rates for selected minerals. As this table shows, the allowance is available to virtually all mineral producers except integrated oil and gas producers, although the highest rates available are for the hard minerals.

TABLE 1. Percentage Depletion Rates For Selected Minerals

Mineral	Percentage depletion rate
Antimony	*22
Asbestos	*22
Asphalt (rock)	14
Bauxite	*22
Beryllium	*22
Borax	14
Cadmium	*22
Chromite	*22
Coal	10
Cobalt	*22
Copper	*15
Feldspar	14
Garnet	14
Gold	*15
Granite	14
Graphite	*22
Gravel	5
Iron ore	*15
Lead	*22
Lignite	10
Limestone	14
Lithium	*22
Magnesite	14
Manganese	*22
Marble	14
Mercury	*22
Mica	*22
Mollusk shells	14
Molybdenum	*22
Nickel	*22
Oil shale	15
Peat	5
Phosphate rock	14
Platinum	*22
Potash	14
Pumice	5
Quartz (radio grade)	*22
Quartzite	14
Sand	5
Shale	5
Silver	*15
Slate	14
Soapstone	14
Sodium chloride	10
Stone	5
Stone (ornamental)	14
Sulphur	22
Thorium	*22
Tin	*22
Titanium	*22
Tungsten	*22
Uranium	22
Vanadium	*22
Zinc	*22
Zircon	*22

*A 14-percent rate applies to these minerals if mined outside the United States.

Source: U.S. Congress. Senate. Committee on Finance. Taxation of Energy and Natural Resources. Joint Committee Print, June 17, 1985, 99th Cong., 1st sess. Washington, U.S. Govt. Print. Off., 1985. p. 21, 22.

Any depletion deduction in excess of cost depletion is considered by economists to be a tax subsidy or incentive because the present value of the total amount deducted typically exceeds the initial investment. In other words, the total amounts that can be recovered through percentage depletion generally exceed the total investment cost of the property. This is true even with the net-income limitation, which limits the allowance to 50 percent of the taxable income from the mine (IRC section 613 (a)). Using cost depletion the total cost recovered cannot exceed the actual investment in the property.

The Joint Tax Committee, the Congressional Budget Office, and the Office of Management and Budget all report the excess of percentage depletion over cost depletion as a "tax expenditure," i.e., a special tax break or incentive which loses Federal revenue. According to the latest report from the Joint Tax Committee, the excess of percentage over cost depletion is projected to between $300 and $350 million for 1992, and $1.4 billion for the five year period between 1991 and 1995. CBO and OMB estimates agree with this. This is the amount by which the industry lowered its tax burden, or conversely, the loss in tax revenues to the Federal Government. The bulk of this allowance is claimed by corporations -- only a small share of it is claimed by proprietorships and partnerships.

Limitations: The percentage depletion allowance may not exceed 50 percent of the taxable income from the property computed without regard to the depletion allowance.

For iron ore (and coal) production, there is an important limitation to the percentage depletion allowance that applies only to corporations. Under IRC section 291, the depletion allowance claimed by corporations must be reduced by 20 percent of the excess of percentage depletion over cost depletion. This limitation was introduced by the Tax Equity and Fiscal Responsibility Act of 1982 (P.L. 97-248). In effect this limitation reduces the 22 percent depletion rate to an effective depletion rate of between 17.6 percent and 22 percent, depending upon the among of cost depletion.[7] Percentage depletion is also subject to recapture provision in the event of the sale or other disposition of the mineral property.

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[7] If the statutory depletion rate is 22 percent, and if this were to be reduced by 20 percent, then the effective depletion rate would be 17.6 percent (22 percent minus 22 percent times .2). Because the statutory rate is reduced not by the full 20 percent but by 20 percent of the excess of percentage over cost depletion, the effective rate is somewhat higher than 17.6 percent. The specific effective depletion rate, therefore, depends upon the cost depletion amount.

The Alternative Minimum Tax

There is another provision of the current IRC that attempts to limit the benefits from the special tax breaks available to the mining industry and other industries: the alternative minimum tax. This alternative minimum tax is an additional tax on items of tax preference, which are a list of ten tax breaks or subsidies that have been identified as potentially able to reduce a businesses' or individual's tax liability to little or nothing. The intent is to assure that all taxpayers -- individuals and businesses -- pay some tax, which is not assured if taxpayers are able to claim a lot of special tax breaks.

In effect, the alternative minimum tax imposes an additional tax above and beyond the normal or regular income tax on the total amount of these ten items of tax preference. This is important for the mining industry because two of the ten preference items are tax breaks that are important to the mining industry: the excess of percentage depletion over cost depletion, and the excess of the exploration and development cost deduction over a hypothetical deduction that would have been allowed if the costs had been amortized ratably (deducted evenly) over a ten year period. A third item of tax preference that the mining firm would have to include in its list of tax preference items is the excess of accelerated depreciation over straight line depreciation.

The extent that the mining industry uses these and other items of tax preference, this could trigger the minimum tax, which would reduce the tax benefits from the above special tax provisions.

Deduction for Mine Closing and Reclamation Costs

The Deficit Reduction Act of 1984 (P.L. 98-369) added a provision that gives preferential tax treatment to the mining industry in the area of mine closing and land reclamation. This provision (IRC section 468) allows mining companies to deduct the costs of mine closing and land reclamation in advance of the actual closing and reclamations, i.e., before the occurrence of the activity giving rise to the expenses. This provision is contrary to the general tax rule under both the cash method of accounting and the accrual method of accounting, which state that expenses to be incurred in the future cannot be deducted currently. Under the cash method of accounting, expenses can only be deducted when the payment is actually made. Under the accrual method of accounting, future expenses may be deducted in advance of actual payment but not in advance of the economic activity that gives rise to the expenses -- they must be deducted in the year in which the economic activity takes place.

Effective Tax Rates in the Mining Industry

Historically, the preferential tax treatment of the mining industry and other extractive industries resulted in relatively low average and marginal effective tax rates. A 1978 Treasury study that used 1972 data ranked the mining industry fourth lowest in effective tax rates out of 19 industries -- only the coal mining industry, petroleum and natural gas industry, and the banking industry had lower effective tax rates.[8] A 1981 study for a selected group of companies within these industries reported similar results.[9] A 1984 Treasury study estimated that the marginal effective tax rate in the mining industry as a whole was about 13 percent. Here mining again ranked 4th lowest -- as in the 1978 study -- but this time there were 25 industries instead on 19.[10]

CRS calculations tend to support these findings: the mining industry generally received preferential tax treatment as compared with other U.S. industries. There are, to our knowledge, no studies of effective tax rates specifically for hard rock minerals, but there is reason to believe that effective tax rates in this sector were even lower than those mining generally due to the extreme capital intensity of this industry, which implies that it greatly benefitted from the two investment incentives described above. In addition, hard rock minerals qualified, as they do today, for percentage depletion rates as high as 22 percent -- the highest rates of any mineral -- and for capital gains treatment of royalties, which was repealed in 1986. Also, we suspect that only a very small proportion of capital assets represented structures, which were taxed at relatively higher marginal tax rates.

To illustrate our main point, CRS calculated the marginal effective tax rate for coal mining equipment to be about 3 percent, before the Tax Reform Act of 1986 (P.L. 99-514) amendments.[11] Since much of this equipment is similar to that used by hard rock mineral industry, it can be assumed that the effective tax rate on equipment purchased by a hard rock mineral business would have resulted in a similar tax rate. This calculation did not include the effects of the 22 percent allowance for depletion, and the capital gains treatment of royalties, which would likely have produced negative effective tax rates. (A negative effective tax rate means that income is being subsidized rather than taxed).

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[8] U.S. Department of the Treasury. *Effective Tax Rates Paid by United States Corporations in 1972.* Washington, May 1978, p. 49.

[9] Tax Analysts and Advocates. *Effective Corporate Tax Rates in 1981.* p. 618.

[10] U.S. Department of the Treasury. Office of the Secretary. *Tax Reform For Fairness, Simplicity, and Economic Growth.* Washington, November 1984, vol. 1. p. 108.

[11] This was an internal CRS calculation executed in 1985. This calculation used the same methodology as in the study cited in footnote 12.

Since 1986, marginal effective tax rates in the mining industry have increased due primarily to the repeal of the investment tax credit, and the lengthening of depreciation periods. This is also true for all industries. In a 1986 study, CRS estimated that the effective tax rate on mining equipment would increase to over 30 percent, a substantial increase from the 3 percent rate before TRA.[12]

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[12] U.S. library of Congress. Congressional Research Service. *Effective Corporate Tax Rates in the Major Tax Revision Plans: A Comparison of the House, Senate, and Conference Committee Versions*. CRS Report No. 86-854 E, August 26, 1986 by Jane G. Gravelle. Washington, 1986. p.3.

Potential Gross Federal Revenues From Proposed Royalties Rents and Fees On Locatable Minerals

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for
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Introduction:

As Congress considers the policy question of establishing a new federal royalty for minerals now located under the 1872 mining law, a key question to ask is, "How much revenue might be generated from such a royalty?" Perhaps the best case, assuming a three and a half per cent gross royalty, it is estimated 96 million dollars in new revenues would be produced. Assuming a seven and a half per cent net royalty the revenues would be 91 million dollars.

A $1.50 per acre rent in the acreage of unpatented mining claims shown in table six would yield $58.7 million. A holding fee of $100 applied to all of the unpatented claims recorded by BLM in 1988 would yield $120 million. The following deductions from these assumed revenues, have not been made due to lack of data:

- The cost to the federal government of collecting the fees, mediating disuputes, policing production has not been calculated. MMS estimated FY 1989 leasing and royalty management budget was $171 million.

- An allowance for expected reduction in production due to higher costs associated with the payment of royalties have not been subtracted from the totals.

- Neither has the loss in federal revenue been adjusted for the higher deductible costs in federal corporate tax payments.

- Revenue estimates are based on retention of all existing claims which is unrealistic. Reduction in royalties due to low prices where net income is negligible or negative were not estimated.

- Reduction in state royalties and severance taxes due to higher costs, were not made, which would assume some federal responsibility for causing reduced state revenues.

- Intangibles such as a major reduction in prospector incentives have not been considered. This could be very significant over time as existing ores are mined and need to be replaced by new deposits. Many experts feel royalty will be deducted from prospector finding fees.

Nevada Tax and Private Royalties:

The amount of taxes now being paid to the states and the amount of royalties producing companies pay to the land owner are important considerations in evaluating a federal royalty on locatable minerals. No attempt will be made here to summarize the taxes and private royalties in the several states. Rather the data from Nevada will be presented as a case in point.

The department of Taxation of the State of Nevada has prepared a report on the 1988-89 net proceeds of minerals based on 1988 calendar year filings. The Nevada law provides that net mining proceeds be taxed by both the county and state, and that the combined tax for both county and state not exceed five per cent. the combined tax may be as small as two per cent for smaller operations (see A.B. 770 for details).

In addition to the Nevada net proceeds tax, mine operators pay private royalties to the owners of the claims or other land from which minerals are being produced.

Table 1 shows, for mine operators producing more than $1 million in gold and silver in 1988, information from the Nevada state tax report on the amount of taxes paid plus the amount of private royalties paid. The private royalty rates vary from zero to fourteen per cent with an average of 4.14 per cent. The tax on net proceeds ranges from 2.0 to 5.0 per cent by statue. The tax per cent of gross proceeds ranges from 0.01 to 3.60 per cent and averages 2.02 per cent. The total royalty plus tax as a per cent of gross proceeds ranges from 0.04 to 14.13 per cent and averages 6.16 per cent. It should be noted that some high private royalties may occur due to unusual circumstances. For example, high royalties have been offered for access purposes, and later gold was discovered in the access route. Very low private royalties of one or two per cent are also questionable. When the total royalty plus tax is compared with the net proceeds

Table 1.-- Gross and net proceeds, taxes, royalties, and rates for Nevada gold and silver mines producing more than $1 million in 1988.

Operator #1	1988 Gross Proceeds #1	1988 Royalty Paid #1	Royalty as Percent of Gross #2	1988 Net Proceeds #1	Tax Rate #3	Amount of Net Proceeds Tax #1	Tax as Percent of Gross #4	Royalty Plus Net Proceeds Tax #5	Royalty Plus tax as prcent of Gross #6	Royalty Plus Tax as Percent of Net #7
No. 1	$9,000,000		0.00%	$4,500,000	5.0%	$225,000	2.50%	$225,000	2.50%	5.00%
No. 2	1,218,124		0.00%	135,474	2.5%	3,387	.28%	3,387	.28%	2.50%
No. 3	3,675,168	$66,638	1.81%	211,360	2.0%	4,227	.12%	70,865	1.93%	33.53%
No. 4	22,825,287		0.00%	13,100,034	5.0%	655,002	2.87%	655,002	2.87%	5.00%
No. 5	7,472,195	397,576	5.32%	77,648	2.0%	1,553	.02%	399,129	5.34%	514.02%
No. 6	21,325,753	743,066	3.48%	8,780,648	5.0%	439,032	2.06%	1,182,098	5.54%	13.46%
No. 7	49,200,000	1,500,000	3.05%	0	0.0%	0	0.00%	1,500,000	3.05%	Inf.
No. 8	2,205,000		0.00%	441,000	3.0%	13,230	.60%	13,230	.60%	3.00%
No. 9	115,892,282		0.00%	62,481,674	5.0%	3,124,084	2.70%	3,124,084	2.70%	5.00%
No. 10	5,331,559	193,074	3.62%	380,487	2.0%	7,610	.14%	200,684	3.76%	52.74%
No. 11	13,050,000	618,846	4.74%	1,325,576	2.5%	33,139	.25%	651,985	5.00%	49.19%
No. 12	1,233,184		0.00%	399,674	3.5%	13,989	1.13%	13,989	1.13%	3.50%
No. 13	17,974,046		0.00%	7,320,565	5.0%	366,028	2.04%	366,028	2.04%	5.00%
No. 14	55,534,118		0.00%	20,114,108	5.0%	1,005,705	1.81%	1,005,705	1.81%	5.00%
No. 15	21,981,568	879,288	4.00%	9,993,761	5.0%	499,688	2.27%	1,378,976	6.27%	13.80%
No. 16	51,964,289	1,069,386	2.06%	1,047,645	2.0%	20,953	.04%	1,090,339	2.10%	104.08%
No. 17	38,061,713	1,245,301	3.27%	26,042,432	5.0%	1,302,122	3.42%	2,547,423	6.69%	9.78%
No. 18	4,903,151	218,892	4.46%	1,528,643	3.5%	53,503	1.09%	272,395	5.56%	17.82%
No. 19	2,591,391	364,090	14.05%	103,692	2.0%	2,074	.08%	366,164	14.13%	353.13%
No. 20	9,125,000	200,350	2.20%	5,712,512	5.0%	285,626	3.13%	485,976	5.33%	8.51%
No. 21	27,783,661	816,835	2.94%	7,028,448	5.0%	351,422	1.26%	1,168,257	4.20%	16.62%
No. 22	18,248,349	1,026,561	5.63%	4,746,968	5.0%	237,348	1.30%	1,263,909	6.93%	26.63%
No. 23	127,925,065		0.00%	80,178,930	5.0%	4,008,946	3.13%	4,008,946	3.13%	5.00%
No. 24	21,859,724		0.00%	4,796,265	5.0%	239,813	1.10%	239,813	1.10%	5.00%
No. 25	133,046,786		0.00%	59,210,230	5.0%	2,960,512	2.23%	2,960,512	2.23%	5.00%
No. 26	93,646,685		0.00%	67,356,124	5.0%	3,367,806	3.60%	3,367,806	3.60%	5.00%
No. 27	7,405,985	424,738	5.74%	17,589	3.0%	528	.01%	425,266	5.74%	2417.79%
No. 28	17,349,817		0.00%	2,151,465	2.5%	53,787	.31%	53,787	.31%	2.50%
No. 29	13,719,028	1,552,925	11.32%	651,366	2.0%	13,027	.09%	1,565,952	11.41%	240.41%
No. 30	3,305,083	90,881	2.75%	816,523	3.0%	24,496	.74%	115,377	3.49%	14.13%
No. 31	24,975,223		0.00%	486,295	2.0%	9,726	.04%	9,726	.04%	2.00%
No. 32	102,322,439		0.00%	68.765,957	5.0%	3,438,298	3.36%	3,438,298	3.36%	5.00%
No. 33	14,302,118	642.540	4.49%	620,136	2.0%	12,403	.09%	654,943	4.58%	105.61%
No. 34	7,403,041	552,090	7.46%	541,645	2.0%	10,833	.15%	562,923	7.60%	103.93%
No. 35	376,280,850	47,903,005	12.73%	142,860,476	5.0%	7,143,024	1.90%	55,046,029	14.63%	38.53%
No. 36	27,875,186	868,638	3.12%	15,655,599	5.0%	782,780	2.81%	1,651,418	5.92%	10.55%
No. 37	8,390,414	667,931	7.96%	5,353,753	5.0%	267,688	3.19%	935,619	11.15%	17.48%
No. 38	103,506,050	6,520,173	6.30%	26,120,847	5.0%	1,306,042	1.26%	7,826,215	7.56%	29.96%
No. 39	10,123,070		0.00%	4,169,851	5.0%	208,493	2.06%	208,493	2.06%	5.00%
No. 40	31,500,000		0.00%	16,380,000	5.0%	819,000	2.60%	819,000	2.60%	5.00%
No. 41	3,677,419	79,398	2.16%	1,242,648	4.0%	49,706	1.35%	129,104	3.51%	10.39%
No. 42	15,077,335		0.00%	297,522	2.0%	5,950	.04%	5,950	.04%	2.00%
No. 43	13,818,281		0.00%	3,946,680	3.5%	138,134	1.00%	138,134	1.00%	3.50%
Totals	$1,658,101,937	$68,642,222		$677,092,250		$33,505,712		$102,147,934		
Averages			4.14%				2.02%		6.16%	15.09%

#1. Source: Nevada report; "1988-89 Net Proceeds of Minerals", Department of Taxation, Carson City, Nevada.
#2. Calculated: Royalty paid divided by gross proceeds. Average is total royalty divided by total gross proceeds.
#3. Calculated: Net proceeds tax divided by net proceeds.
#4. Calculated: Net proceeds tax divided by gross proceeds. Average is total net proceeds divided by total gross proceeds.
#5. Calculated: Sum of royalty and net proceeds tax.
#6. Calculated: Sum of royalty and net proceeds tax divided by gross proceeds. Average is total royalty and net proceeds tax divided by total gross proceeds.
#7. Calculated: Sum of royalty and net proceeds tax divided by net proceeds. Average is total royalty and net proceeds tax divided by total net proceeds.

Table 2.--Percentage of federal versus private land production from gold and silver mines producing more than $1 million in Nevada.
From data compiled by the Public Resource Associates.

Mine Number *1	Percent Fed Land *2	Gross Production *3	Federal land Production *4
1.	100%	$1,218,124	$1,218,124
2.	100%	22,825,287	22,825,287
3.	100%	21,325,753	21,325,753
4.	100%	5,331,559	5,331,559
5.	100%	13,050,000	13,050,000
6.	100%	1,233,184	1,233,184
7.	100%	17,974,046	17,974,046
8.	100%	21,981,568	21,981,568
9.	100%	51,964,289	51,964,289
10.	100%	38,061,213	38,061,213
11.	100%	4,903,151	4,903,151
12.	100%	2,591,391	2,591,391
13.	100%	27,783,661	27,783,661
14.	100%	18,248,349	18,248,349
15.	100%	127,925,065	127,925,065
16.	100%	21,859,724	21,859,724
17.	100%	133,046,786	133,046,786
18.	100%	93,646,685	93,646,685
19.	100%	13,719,028	13,719,028
20.	100%	3,305,083	3,305,083
21.	100%	102,322,439	102,322,439
22.	100%	3,677,419	3,677,419
23.	100%	15,077,335	15,077,335
24.	100%	13,818,281	13,818,281
25.	74%	55,531,118	41,093,027
26.	65%	49,200,000	31,980,000
27.	63%	8,390,414	5,285,961
28.	50%	14,302,118	7,151,059
29.	50%	7,403,041	3,701,520
30.	33%	103,506,050	34,156,996
31.	30%	9,125,000	2,737,500
32.	30%	24,975,223	7,492,567
33.	25%	376,280,850	94,070,212
34.	23%	27,875,186	6,411,293
35.	0%	9,000,000	0
36.	0%	3,675,168	0
37.	0%	7,472,195	0
38.	0%	2,205,000	0
39.	0%	115,892,282	0
40.	0%	17,349,817	0
41.	0%	7,405,985	0
42.	0%	10,123,070	0
43.	0%	31,500,000	0
Total		$1,575,143,984	$1,010,969,255

Average of production from federal land. *5 64%

*1. Names of operators not shown to protect confidentiality.
*2. Source: interviews by PRA.
*3. Source: Nevada report: "1988-89 Net Proceeds of Minerals". Department of Taxation. Carson City. Nevada.
*4. Calculated: Percent federal land multiplied by gross production.
*5. Calculated: Average is total federal land production divided by total gross production.

Table 3.--Type, size portion on federal land and gold production from a group of claims in California.

Type *1	Private Acres Project Area *1	Federal Acres Project Area *1	Total Acres Project Area *2	Percent Federal Land *1	Estimated Ounces Produced per year *1	Ounces Produced From Federal Land *3
Lode	850	3,025	3,875	78%	190,000	140,516
Lode	41	248	289	86%	18,000	15,446
Lode	142	158	300	53%	45,000	23,700
Lode	0	2,000	2,000	100%	25,000	25,000
Lode	40	4,000	4,040	99%	72,000	71,287
Lode	200	0	200	0%	24,000	0
Lode	0	20	20	100%	1,250	1,250
Lode	6	63	69	91%		0
Placer	1,150	0	1,150	0%	30,000	0
Placer	0	1,200	1,200	100%	1,000	1,000
Lode	400	450	850	53%	14,000	7,412
Placer	0	400	400	100%	20,000	20,000
Lode	1,250	250	1,500	17%	30,000	5,000
Lode	2,000	100	2,100	5%	60,000	2,857
Lode	630	75	705	11%	60,000	6,383
Lode	3,300	0	3,300	0%	130,000	0
Lode	115	2,717	2,832	96%	100,000	95,939
Placer	400	50	450	11%	1,000	111
Placer	70	130	200	65%	300	195
Total	10,594	14,886	25,480		811,550	416,097

Percent of federal land area. *4 58%

Percent of production from federal land. *5 51%

*1. Source: Bureau of Land Management, California.

*2. Calculated: Public land area plus private land area.

*3. Calculated: Percent of federal land area multiplied by ounces produced.

*4. Calculated: Total federal land area divided by total land area.

*5. Calculated: Ounces produced from federal land divided by ounces of total production.

it is extremely high in some cases, over 100 per cent, and lows of 2.00 per cent; the average is 15.09 per cent.

Table 1:

The taxes and private royalties paid by gold and silver mine operators in Nevada ($102, 147, 934) are substantial. This sum amounts to a significant part of the cost of doing business and it becomes onerous in some cases when compared with the net proceeds of the mine.

Bases for Federal Policy:

Federal royalties now in force are assessed on federally owned coal, oil and gas and other leasable minerals where access and ownership of the minerals is obtained by a lease agreement. Lands in the original thirteen colonies, Louisiana purchase lands, Texas and others where minerals were not reserved to the federal government, no federal royalties apply for oil gas or coal. This is a source of controversy at times with Western legislators. Locatable minerals in the Western states have been free from federal royalties because ownership of the minerals has been through the location-patent system of the 1872 General Mining Law. Typically, in the past, mineral lands were patented before mine production occurred and would, therefore not be subject to a royalty. However, in recent years an increasing amount of mining is being conducted on unpatented mining claims

Table 4.--Hard rock mineral production, 1988, compiled by the USBM and percent of production on federal lands compiled by the USBM and Public Resource Associates.

State	Total Hardrock Production (thousands) *1	Percent Production on Federal lands *2	Production on Federal lands (thousands) *3
Alaska	$106,667	90%	$96,000
Arizona	$2,532,042	10%	$253,204
California	$321,021	40%	$128,408
Colorado	$273,776	30%	$82,133
Idaho	$97,532	0%	$0
Montana	$539,663	90%	$485,697
Nevada	$1,702,128	65%	$1,106,383
New Mexico	$736,007	50%	$368,004
Oregon	$53,080	90%	$47,772
Utah	$841,080	75%	$630,810
Total	$7,202,996		$3,198,411
Average percent of production from federal land. *4		44%	

*1. Source: U.S. Bureau of Mines "State Mineral Summaries 1989".

*2. Source: USBM Idaho; USBM and PRA Arizona, California, Montana, Nevada, New Mexico, Oregon and Utah; PRA, Alaska and Colorado; 1989.

*3. Calculated: Percent of production on federal lands times hardrock production.

*4. Calculated: Average is total production from federal lands divided by total production.

located under the 1872 law. Mineral production from these lands could be assessed a federal royalty.

Gross Production From Federal Land:

How much production might be subject to a federal royalty? No statistics are now kept on a comprehensive bases by any federal land managers on the portion of mineral production derived from federal versus private land. Several attempts have been made to estimate these figures.

Table 4:

The percentage of locatable mineral production from the federal land determined from individual groups of mines in Nevada (Table 2) is close to the figure for the state shown in Table 4. The data from the group of mines in California (Table 3) is 11 per cent higher than reported for the state in Table 4. Based on these data a reasonable estimate of the part of the production of locatable minerals from federal land at this time is 44 per cent.

Net Production From Federal Land:

The tax data from Nevada includes the gross and net mineral production, as defined by the Nevada state tax code, for each mine in each county. The data, for hardrock minerals only, are compiled in Table 5 to show the amount of gross proceeds and the net proceeds in the state. The compilation and calculation shows the net proceeds to the 38 per cent of the gross.

Table 5.--Gross and net proceeds from mining of hard rock minerals in Nevada.

County	1988 Gross Proceeds *1	1988 Net Proceeds *1
Carson City	$9,495	$5,737
Churchill	488,261	0
Clark	0	0
Douglas	0	0
Elko	193,256,811	74,035,021
Esmeralda	8,285,768	1,528,643
Eureka	464,414,516	155,379,066
Humbolt	269,420,609	161,301,034
Lander	235,501,136	72,903,047
Lincoln	23,073	0
Lyon	162,636	0
Mineral	83,824,922	25,742,991
Nye	256,656,951	111,489,105
Pershing	117,740,258	37,052,267
Storey	5,939,329	971,152
Washoe	11,790,196	0
White Pine	89,495,683	28,020,227
Total	1,737,009,644	668,428,290
Net as percent of gross. *2		38%

*1. Source: Report on "1988-89 Net proceeds of minerals" Department of Taxation, Carson City, Nevada.

*2. Calculated Net proceeds divided by Gross proceeds.

Table 5:

If, for the purposes of this paper, one will assume the Nevada case shown in Table 5 is valid for all the Western states, the 38 per cent of gross figure can be used to calculate the total net 1988 production for the Western states. The gross production from both federal and private lands of $7.20 billion, shown in Table 4, would be reduced to $2.74 billion net value of production ($7.20 X 38% = $2.74). The value of gross production, from federal lands only, of $3.19 billion would be reduced to $1.21 billion net ($3.19 X 38% = 1.21).

Any federal gross royalty would be applied to an estimated $2.74 billion and any federal net royalty would be applied to an estimated $1.21 billion.

Number and Acreage of Claims:

Legislation under consideration by Congress has proposed that an acreage surface rental be applied to mining claims. How many acres are under claim?

The "Public Land Statistics 1988," published by BLM, reports that at the end of 1988, 1,208,160 unpatented mining claims were on record in the U.S. This figure includes all types of claims, lode, placer, millsite and tunnel site. Lode and placer claims are commonly located to overlap. No records were found to show the amount of overlap. Therefore, no data was available to directly determine the acreage of federal land covered by unpatented mining claims.

Any estimate of the total acreage of unpatented claims in the U.S. would, of necessity, be based on personal experience and assumptions as to the numbers of each type of claim, acreage per claim and amount of overlap between claims.

For the purpose of this paper it is assumed that the acreage involved in millsite and tunnel site unpatented claims is relatively insignificant they may be ignored and attention directed to lode and placer claims. It is assumed that 90 per cent of the claims are lode and there is no overlap between them. It is further assumed that no overlap exists between placer claims and 90 per cent of the placer claims do not overlap lode claims. Under these assumptions, the total acreage in unpatented claims would be 39,144,384 acres as shown in Table 6.

Table 6:

Estimates of the fraction of production that comes from federal land are based on several sources of information. In 1989 Susan Lynn of the Public Resource Associates (PRA), interviewed individual mining operators in Nevada and state and federal agencies in the Western states. The Bureau of Land Management (BLM) has complied information on production and land status for some gold mines in California. In 1989 the U.S. Bureau of Mines also prepared information on the portion of mineral production that comes from federal land.

The results of interviews of individual mine operators producing more than one million in gold and silver in Nevada conducted in 1989 by the PRA are shown in Table 2. Percentages range from 0 to 100 per cent. The average of production from federal land is 64 per cent.

Table 2:

The results of the data complied by the BLM on a group of gold mines in California are shown in Table 3. Federal land amounts to 58 per cent of the total land area being mined. The gold production from federal land is 51 per cent of the total.

Table 3:

The percentage of hardrock mineral production from federal lands in each of the Western states together with gross mineral production compiled by the U.S. Bureau of Mines for 1988 is shown Table 4.

In 1989 the PRA interviewed state officials and in the same year the U.S. Bureau of Mines (USBM) compiled similar information. The figures on the percentage of production on federal lands from the data compiled by the USBM and the PRA are identical for all states except Idaho where the PRA reports 10 per cent and the USBM reports zero per cent. The USBM does not report a figure for Alaska or Colorado. The data from both sources are used in Table 4.

The part of the total production from federal land ranges from zero to 90 per cent with an average of 44 per cent. The production from federal lands in each state is calculated an totaled. Of the total production of approximately $7.2 billion, approximately $3.2 billion is from federal lands.

Conclusion

Several bills have been introduced in Congress in recent years which include provisions to generate revenue by rents, royalties and/or holding fees on mining claims. S.1126 by Senator Bumpers proposes a royalty. H.R.3866, by Congressman Rahall, proposes a surface rent. S.30, as passed by the committee March 8, 1989, included a provision for an annual fee of $550 to hold oil shale placer claims in lieu for annual assessment work. The Administration's 1991 tax proposal includes a provision for an annual holding fee of $100 in lieu of assessment on all mining claims.

The annual revenues that could be generated from either a federal royalty or a rental on unpatented claims is fairly modest in comparison to the federal budget, but would represent a substantial cost increase to the mining industry.

A one per cent royalty on the net value of hardrock mineral production, estimated earlier in this paper in the section "Net Production From Federal Land" to be $1.21 billion, would yield $12.1 million. A one per cent royalty on the gross value of production, $2.74 billion, would yield $27.4 million.

A dollar per acre rent on the acreage of unpatented mining claims shown in Table 6 would yield $39.1 million. The amount of unpatented claim acreage under approved mine plans is not known.

This is subject to a five dollar an acre rental fee under the Rahall bill and has not been factored into the study.

A holding fee of $100 applied to all the unpatented claims recorded by the BLM in 1988, 1,208,160 (Table 6), would yield $120.8 million.

A holding fee of $550 per claim, has been proposed for oil shale placer claims. The oil shale placer claims are 160 acres. An equivalent fee for a 20 acre lode claim would be $68.75. A holding fee at the oil-shale rate on all unpatented claims under the assumption shown in table 6 (90 per cent lode claims and 10 per cent placer claims) would yield $141.2 million (sum of 1,087,344 lode claims times $68.75 and 120,816 placer claims times $550).

1. Private royalties are commonly paid by the operators to the prospector who located the claims and owns land where the mine is operating. Any imposition of the production royalty upon the mine operation will have the likely effect of driving down royalties paid to the prospectors. This would reduce the incentives of the prospectors to go out and find new ore deposits.

2. Royalties or taxes may be based on both gross and net revenues. The amount derived from either may be the same provided the gross tax is proportionally less than the net tax, but two important factors should be kept in mind when choosing between gross and net royalties:

- Taxes from net proceeds can be paid from profits whereas taxes on the gross may be assessed where little or no profit exists. The ability to pay is important.
- The allowable costs deducted from the gross to arrive at the net may be difficult to define and administer thereby causing confusion and disputes. For this reason it may be simpler to use the gross as the basis.

3. Any increase in costs, whether a net or the gross royalty, will have an effect on profitability and reduce production particularly on the marginal deposits.

4. Rents are easier to administer and the rent agreement gives property rights to the mine operator while a production tax simply costs the producer.

On the other hand, rents may be less desirable than a production tax because rents are payable on all claims, may not come from cash flow, whether they are productive or not, from the day they are staked.

5. Holding fees in lieu of assessment work diminishes the incentive to engage in exploration.

6. Modern mine operators regard fair taxes, rents, fees and care of the environment as part of the legitimate cost of doing business. It must be born in mind by all concerned, however, that when costs exceed return from production, mining operations must cease. And, no mineral wealth will be created for the benefit of anybody--consumer, investor, worker or tax collector.

The cumulative impact of increased costs, by new legislation is not known but is significant.

Table 6.--Acreage of claims recorded in the U.S., 1988, assuming 90 percent are lode claims and 90 percent of placer claims do not overlap lode claims.

Type #1	Number #2	Acres Per Claim #3	Acres #4	Not Overlap #5	Composite Acres #6
Total Claims recorded	1,208,160				
Lode Claims @90%	1,087,344	20	21,746,880	100%	21,746,880
Placer Claims @10%	120,816	160	19,330,560	90%	17,397,504
			Total acres under claim		39,144,384

#1. Percent of lode and placer claims assumed.
#2. Source of total: "Public Land Statistics 1988". Number of lode is 90 percent of total. Number of placer claims is 10 percent of total.
#3. Lode claims are normally 20 acres and placer claims 160 acres.
#4. Calculated: Acres per claim times number of claims.
#5. Assumed.
#6. Calculated: percent not overlaping times acres.

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Testimony Before the U.S. Senate
Subcommittee on Mineral Resources, Development and Production
of the
Committee on Energy and Natural Resources

Honorable Jeff Bingaman, Subcommittee Chairman

Testimony of Donald L. Fife, Chairman
National Inholders Mineral Advisory Board

In Opposition to S-1126
"The Mining Law of 1989"

Washington, D.C.
September 13, 1990

THE EXISTING U.S. MINING LAW DOESN'T NEED REVISION.

I am Donald Fife, past president of the South Coast Geological Society, member of the American Institute of Professional Geologists Governmental Affair Committee, and from 1981 to 1989 was the Secretary of Interior's appointee for geology, energy and minerals for the Bureau of Land Management's California Desert Multiple-Use Advisory Council on the 25 million acre California Desert Conservation Area.

As geologist from a family of small miners, I have been involved in mineral exploration and mining for 40 years and has been through the entire process from discovery to patent to production of minerals under the current Mining Law several times. I am also senior editor of two landmark volumes: 1) *The Geology and Mineral Wealth of the California Desert* (555 pp.) and 2) *The Geology and Mineral Wealth of the California Transverse Ranges* (699 pp.), which cover about 40 million acres of Southern California and adjacent continental border land.

The National Inholders Association and Multiple-Use Land Alliance represents those people owning private land and other interests within federal boundaries including miners holding vested interests under the Mining Law. NIA has over 20,000 members in 50 states and 200 federal areas. There are an estimated 1.4 million inholders nationwide in addition to more than one million mining claim and mine owners and small explorationists.

A way of life for hundreds of thousands of citizens and a national asset for America would be destroyed by imprudent changes to or destruction of the present location system under the existing Mining Law.

The location system has worked well for more than a century, providing

American consumers and society with important locatable mineral commodities. In fact, the free enterprise incentive and encouragement of the Mining Law is needed as much or more than a century ago. Comprising only about 5% of the world's population, Americans consume about 20% of the worlds non-fuel minerals. According to the U.S. Bureau of Mines, the average newborn infant will need a lifetime supply of 795 pounds of lead, mainly for car batteries solder and electronic components; 757 pounds of zinc, as an alloy with copper to make brass, as protective coatings on steel and as chemical compounds in rubber and paints; 1,500 pounds of copper, mainly used in electrical motors, generators, communications equipment and wiring; 3,593 pounds of aluminum for all sorts of things -- like beverage cans, folding lawn chairs, and aircraft;; 32,700 pounds of pig iron, for kitchen utensils, automobiles, ships and large buildings; 26,500 pounds of clays, for making bricks, paper, paint, glass and pottery; 28,213 pounds of salt, for cooking, plastics, highway de-icing and detergents; and 1,238,101 pounds of stone, sand, gravel and cement, for building roads, homes, schools, offices and factories.

The Mining Law as amended over the last century has provided a significant proportion of these minerals. This system is functioning well and we see no need for changes. As has been said before: "If it ain't broke, don't fix it."

Mineral inventory and assessment of large areas must consider not only the dynamics of geology and mineral economics, but to be meaningful to society, must consider all present and future mineral commodity demands for agriculture, manufacturing and national defense. Until such insight is possible, no final mineral inventory or assessments can be made. The current Persian Gulf crisis points out the importance of identifying and using all our mineral resources wisely. Therefore, it is rational and prudent for American society to leave open to mineral location as much area as possible. The location system should be extended to federally acquired lands and to the federal seabed within the 200 mile zone. Precise positioning through systems satellite surveying are now feasible for offshore mining locations. The independent small-miner/explorationist is not obsolete in the exploration/assessment process. Most mineral discoveries would not have been made without the small independent explorationist.

The history of the West is in large part a history of discoveries by the small miner/prospector. Most individual miners and large resource companies identify the majority of their exploration targets either directly from the small explorationists or from evidence of their previous efforts under the location system.

In effect, the current Mining Law has produced an army of thousands of citizens in which the free enterprise system continually "explores and assesses" our open public lands at sea at no cost to the taxpayers.

Most successful mining operations were reviewed and explored by dozens of mining companies or private individuals over a period of years before someone made the commitment in dollars and cents to risk making a "mineral discovery" an operating mine. Without the incentive and potential for ownership under the existing Mining Law, most of these efforts would never have taken place.

We are now having the nation's mineral resources assessed and "inventoried" by small prospectors and independent geologists. Having the right to look and dream of striking it big provides the incentive for these people to continue exploring. Sometimes they make big discoveries, but without the encouragement and incentive provided in the law, they wouldn't do it. They couldn't do it.

Without the existing Mining Law, accidental discoveries like the world class borate discovery at Boron, California, or the world class rare earth lanthanide deposit at Mountain Pass, California, would tend not to be reported let alone developed. The long term effects of replacing the Mining Law would also be profoundly negative, in that it would seriously impact our ability to find and produce locatable critical and strategic mineral commodities. America could lose the small independent explorationist, and the expertise and knowledge of American's mineral wealth, which is frequently handed down from one generation to the next, as oral history not found in the public record.

In the Eastern California Desert is the rare earth deposit at Mountain Pass where, in 1949, most of the Western world's known rare earth lanthanides were discovered by three uranium prospectors, Herb Woodward, Jim Watkins, and "Pop" Simon. This discovery is in a belt several thousand feet wide and several miles long and perhaps three thousand feet deep. The Sulfide Queen gold mine operated for years almost on top of the rare earth body without anyone knowing it. Hundreds of prospectors and dozens of company and government geologists had walked over it while millions of motorists drove over it on their way to California.

There was suddenly so much rare earth lanthanide, as well as no known way to process it, that the deposit would not be considered economic and therefore might not be a valid discovery under today's Mining Laws and excessively strict rules of marketability. As in practically every mineral discovery it took considerable capital (millions of dollars) to make the deposit economic. Without the existing Mining Law, the small prospectors would never have been out prospecting in the first place. It is also doubtful that the investment of millions of dollars in research to make an unknown mineral commodity economic would have been made without ownership guaranteed under the U.S. Mining Law.

In 1980 Warren Warhol, in the South Coast Geological Societies' *Geology and Mineral Wealth of the California Desert,* notes "that many of the uses of rare earth lanthanides were developed only after their commercial availability was demonstrated on a scale which was only made possible by the discovery of the Mountain Pass ore body. The research and development that followed created the economic value of this unique ore body."

It is easy to overlook the significance of this order of events; that is, the discovery value by small miners and its contribution to the technology of chemistry, metallurgy, glass, petroleum refining and electronics. The lesson to be learned is that if this area had been closed to the existing location system in the past, not only would the benefits from this resource have been postponed or lost, its value would still be unestablished.

This single rare earth discovery has made the United States the predominant world producer of rare earth lanthanides, such as: Europium, which activates crystals of yttrium to produce red color in television picture tubes; and samarium and neodymium which, when alloyed with other elements, produce a super-magnet so powerful that when used in the conventional electric motor, increases its efficiency by 25 to 50%. With the coming light-weight battery technology, these metals are becoming a significant factor in the development of a pollution-free electric-powered automobile.

The rare earth lanthanides (lanthanum, cerium, neodymium, praseodymium, samarium, gadolinium, europium, and some ten others) are in the forefront of elements promising a new age of superconductivity and super-magnets which will bring a better environment and quality of life tc America via clean fusion energy, vastly more efficient electrical power transmission and smogless, quieter electric automobiles. The availability of these elements is also playing a role in the development of the Strategic Defense Initiative (SDI). This technology, and the principal known reserve of these rare earth lanthanides in North America, we owe to the original discovery by "Pop" Simon, Herb Woodward, and Jim Watkins, exploring under the present Mining Law.

A LEASING SYSTEM IS NOT IN THE BEST INTEREST OF THE NATION

It concerns us greatly that many of the same groups that would like to destroy the present mining location system in favor of a leasing system, are the same groups promoting vast closures of the federal lands to society's access for minerals. Their goal appears to be no mining and no energy production in the United States. There appears to be an effort to influence public policy on mineral access with little understanding of the disastrous effect on American's economy. On California's public federal land (50% of the state) as well as other public land states, little or no recent in-depth regional research has been undertaken by the government or academia since the 1960's. The mineral data base upon which government and private industry are making their decisions today is commonly more than 30 years out of date. Mineral exploration is the R&D of the mineral industry. Regional economic geology and mineral commodity studies are the foundation of mineral exploration. The lead time to open a new mine now commonly exceeds 20 years or more. Basic state of the art regional geologic and specific mineral commodity studies are necessary to keep the United States competitive with the rest of the world and to maintain our standard of living.

Presently, as well as during the past three decades, prospectors, independent geologists, and private companies operating under the Mining Law have been the major force in exploring and assessing locatable mineral resources on the public lands.

Unlike oil or geothermal resources, locatable minerals cannot be produced from the same drill hole that was used to explore for energy resources. Locatable mineral commodities tend to require vastly more ingenuity and risk to find and develop. Many deposits are one of a geologic kind; for example, the Mountain Pass rare earth lanthanide deposit, the borate deposit at Boron, California, and the hectorite lithium-fluoride clays near Barstow, California.

Discretionary leasing on such unique geologic occurrences, or even more well-known geologic models in unique or complex geologic environments, will be given low priority or no priority for prospecting permits or leases because we professionals have been lead to believe through out training that a deposit "should not" be there.

Even under the existing non-discretionary Mining Law, the last small family limestone operation in the San Bernardino National Forest, Partin Limestone Products, on unpatented mining claims, was driven out of business. Bureaucrats in the lower level of the U.S. Forest Service treated certain so-called "sensitive" buckwheat plants (256 plants) as an "endangered sub-species" that "only grows on limestone and only this National Forest. The family mining operators were forced to continue mining from their old pit where economics were forcing them into bankruptcy, while millions of tons of high grade ore sat next to their mill untouched. The fact that the plants grow readily in the mined out areas was totally ignored.

My family's patent application, near the Partin Mine, was delayed for months in the same forest in the early 1980's because the U.S. Forest Service staff told us that the only place in the world this plant grows was on the one (1) acre I wanted to mine!! The Forest Service also claimed that there were other so-called limestone endemic plants on our site that only grow in high-grade limestone deposits.

As one whose major in college was paleontology, it is my observation that none of these new alleged sub-species has undergone the appropriate peer review to be listed as such, or to be described as a new "sub-species". The published literature indicates most of these same plants are found over vast regions of Western North America. However, the environmental smoke screen is being used to curtail the miners' exploration and society's access to the mineral resources on National Forest lands in direct opposition to official U.S.

Forest Service policy.

If a leasing system were used, it would create an open season for undocumented subjective and politically motivated decisions based on so-called environmental grounds that would make most of the mineral discovery and development process uneconomical. Protections included in the existing Mining Law that keep the exploration process even marginal, in light of incremental entry withdrawals and constant harassment and pressure from the Forest Service and other land agencies, would be completed wiped out under a leasing system.

It should be noted that the owners of the largest single bloc of patented and unpatented mining claims in the San Bernardino National Forest are the 6,000 co-beneficiaries of the local AFL-CIO Steel Workers Union Health Insurance and Pension Trust Fund, The Cushenbury Trust. Conversion of their unpatented mining claims to leases would be a severe blow to these 6,000 inholders and their ability to pay pensions and medical bills, which are only partially payable now.

There is a tendency for the public and the bureaucracy to view society's need for resources in a one dimensional static framework such as, "the land has been prospected for more than 100 years", with the implication that everything has been found. One is reminded of the mindset in the U.S. Patent Office in the 1890's which suggested that the Patent Office should be closed because everything worthwhile has already been invented.

In reality, rapidly changing economics and technology continually change the kinds of minerals that are sought and the grades that are economic. Changing to a leasing system, or even a "split estate" system between the surface non-mineral rights and the mineral rights has the potential for serious conflict between what is or is not mineral in low grade deposits with consistently changing economics. According to Vincent McKelvey (1976), former director of the U.S. Geologic Survey (1972-1978): "Mineral reserves and resources are dynamic quantities and must constantly be appraised. As known deposits are exhausted, unknown deposits must be discovered, new extraction technologies and new uses are developed and new geologic knowledge and geologic environments are favorable for mineral discoveries." We maintain that the existing Mining Law is an important part of this assessment process.

There is a real danger that prospecting permits or leases for locatable minerals would tend to be refused until the deposit is "proven". Of course, a mineral deposit may not be "proven" until an individual or company has a possessory interest that gives them the incentive for risking large sums for exploration. This would tend to become a "Catch 22" situation.

At the Andrew Curtis Tungsten deposit located under the location system in the Angeles National Forest near Mt. Baldy in Cattle Canyon in Los Angeles County, California, the Forest Service and radical environmental groups tried by every means possible to prevent this new world class tungsten deposit from being developed. They wanted this area closed to mining and made into a wilderness area. The mine was put into The Big Horn Wilderness, but the small miner, Ron Curtis, a disabled Vietnam veteran, was able to fend off the radical environmentalists because he had valid mining claims. To his credit, he has provided American consumers with a new source of this strategic element. Incidentally, The big horn sheep and other wildlife have flourished around Curtis' tungsten mining operation so that the government biologists are having to transport the excess animals to other areas. Had the Curtis deposit been on a discretionary federal lease, it would certainly have been canceled.

California is the largest consumer of agricultural and industrial phosphates in the nation, yet it imports 100% of its supply. This should not be the case. California is part of a phosphate bearing geologic province extending from the tip of Baja California, Mexico to Marin County north of San Francisco. Phosphates must currently be shipped into California from other states and from overseas. Millions of barrels of oil could be saved in processing and transportation costs if local phosphate deposits were developed onshore or in the seabed lands off the California coast. An important phosphate deposit was discovered on a federal lease near Ojai in Ventura County, California, several years ago. It was drilled by U.S. Gypsum Company and reserves developed, but because it was 15 miles from a Condor Reservation, and was on a discretionary lease, the company did not feel they had guaranteed tenure to risk millions of dollars on further development and production facilities when unfounded radical environmental opposition appeared, and this lease was abandoned. Had this been a locatable mineral deposit, it would probably be producing today, saving millions of barrels of petroleum now wasted in shipping phosphate to California. Other phosphates lie in the off-shore California seabed lands, and a location system might just be the catalyst for supplying the enormous California market and saving a strategic commodity-petroleum.

The leasing system on state lands for locatable minerals belonging to the State Teachers Pension Fund in California, has been a total failure. Virtually all explorationists, large and small, have given up on locatable occurrences on these lands because of the lack of incentives and ownership of the mineral estate. Ownership is one of the greatest incentives for reclaiming the land after mineral extraction. In California and other western states, there are existing strict environmental reclamation statutes, in addition to those of the Forest Service and Bureau of Land Management.

THIS BILL IS UNREALISTIC AS TO NEEDED LEAD TIME TO DISCOVER, EXPLORE, AND BRING A NEW MINE INTO PRODUCTION.

As previously mentioned, it frequently takes 20 years or more to development a mine today. My family and I have discovered, explored, patented and put into production three large mineral deposits since the 1950's, as follows:

Fife Deposit #1: This deposit was discovered in 1951, put into production in 1952, and is still producing today. It took 13 years to patent a portion of the deposit; the patent was denied on the best portions of the deposit and the federal government traded the land to the State of California. The current operator now buys the mineral from the State of California. The cost to acquire the patented portion in the 1960's was about $800.00 per acre, plus the BLM filing fees;

Fife Deposit #2: This deposit was discovered in 1954, explored in 1955, and patented in 1958 at a cost of about $500.00 per acre, plus BLM filing fees. Because this deposit was "landlocked" without access, it did not get into production until 1990, or 32 years after patenting; and

Fife Deposit #3: The third deposit was discovered in 1955, and it took 28 years of development and 9 years to process the patent. It was patented in 1983, the _same base year as last year's infamous GAO report..."The Mining Law of 1872 needs revision". This deposit went into production two weeks before this hearing in August 1990. After 35 years of diligent effort, including meeting environmental regulations, and laws at the federal, state and local level. The cost to patent our third deposit exceeded $5,000.00 per acre, plus BLM fees. This is somewhat higher than the estimate made last year by Buster Lamour, Chief of Land and Mineral of the U.S. Forest Service, who indicated to us that in 1989 the average cost to patent an acre in the National Forest was running about $4,000.00 per acre.

The above three deposits would not have been brought into production under this bill, particularly with the proposed, "diligence requirements" and rental fee provisions. I would like to invite the subcommittee, it's staff, and particularly, the GAO to visit the above three deposits. You will see, the existing Mining Law functions as intended by the many farsighted legislators who have preserved the essence of the existing Mining Law through 65 statutes and thousands of regulations and court decisions since its inception.

Contrary to much of the recent environmental hysteria, my family and I have met all of the environmental regulations, including reclamation and bonding. We have no acid mine drainage, or toxic waste problems. At deposits 2 and 3, we produce extremely high grade white calcite filler-extenders that are used to replace petroleum derived resin and organic chemical fee stocks in paints, plastics and rubber. This fine-ground calcite is used to replace toxic lead oxide in paints. When very finely ground, this calcite is used as an abrasive in major brands of toothpaste, and as a filler in chewing gum and for neutralizing toxic waste, and "scrubbing" toxic air pollutants from fossil fuel burning plants. It is also used to manufacture antacids like "Tums" and "Rolaids". Another use is to keep hard candy from sticking. These two calcite deposits are reducing our dependance on a strategic commodity... petroleum.

We have no cabins, condos, golf courses, real estate developments, fishing holes, marijuana patches, or PCP labs, as one might believe if you read some of the recent hype the press has been mislead into publishing as representative of mining claim uses.

If one really believes you can buy or patent mineral lands for a simple $2.50 or $5.00 per acre without investing years of hard word and thousands of dollars per acre, they are sadly misinformed. According to Eugene D. Smith of U.S. Borax Company, it recently cost them $9,300.00 per acre to patent their Quartz Hill molybdenum deposit. Seven of my family partners died during the long effort of development, patenting and jumping through the maze of environmental laws and regulations required to bring our third deposit to patent. Several years more and several more millions of dollars were required to bring this deposit into production. These funds only became available because the title was now guaranteed by the issuance of the mineral patent.

THE EXISTING LOCATION SYSTEM CONSERVES PETROLEUM.

With American lives and energy interests at stake in the Persian Gulf Crisis, Congress should be aware that the existing Mining Law is identifying and inventorying our mineral resources on public lands that directly save millions of barrels of petroleum. Through direct substitution as mineral filler-extenders such as mentioned above and by saving petroleum that would otherwise be needed to import those minerals from remote sources.

ENVIRONMENT HYSTERIA CAN DO GREAT HARM TO THE MINING LOCATION SYSTEM AND TO OUR NATIONAL ECONOMY.

Many benefits have accrued to society by the measured application of good science,engineering and sound management to environmental legislation. However, Congress and many government agencies have been misinformed and mislead into many mis-perceptions on mining and mineral issues as more hype than fact has been supplied to decision makers. Two good examples are:

Example #1: Mining Claims in Death Valley:

Congress and the public were grossly misinformed and mislead into acting against mining and mining claims in Death Valley, as documented by the General Accounting Office in their report, *Mining on National Part Service Lands -- What Is At Stake?* Park Service officials testified before Congress that there were 50,000 mining claims in Death Valley National Monument and the "monument" was in danger of being strip-mined away." After Congress passed the Mining the Parks Act in September 1976, freezing mining in Death Valley National Monument, it was found that the 2.0 million acre monument only contained 863 mining claims under the Mining Law. Unfortunately, out of several hundred small mining claimants, only 2 unpatented claim groups ("Bullfrog" and "Skidoo-Del Norte") had the resources to defend themselves from what GAO labeled as a biased invalidation process by the Park Service. These valuable deposits undoubtedly would have been wiped out if they had been granted a lease under a leasing system, just as local cattleman Roy Hunter was wiped out on his grazing lease after his family had been in the Death Valley area for more than 100 years.

Parenthetically, the rancher was thrown out after maintaining the range in good condition for a century and the Park Service, with its policy of non-management, allowed the feral burro population to destroy the range creating a huge dust bowl.

As of 1990, over zealous in environment regulations largely based on misinformation have made mining of any kind uneconomic in Death Valley. All mining has now become virtually impossible in the monument. The nations largest talc mine has been closed. The equipment has been shipped to China and the U.S. has now gone from exporting talc to importing talc.

This is very ironic because Death Valley is now known to geologists as a "pull apart basin" with a major rift in the crust of the earth comparable to the mineral rich rifts of the Red Sea or the Gulf of California. This is an extremely favorable geologic environment for deposition of minerals from deep in the earth or for geothermal energy. Most nations would be actively exploring and developing such a region. We have closed it to development.

Example #2: Irrational Hysteria Over Small Amounts of "Asbestos".

Certainly a dangerous commodity when improperly used. My father was on a life support system for 2.5 years in my home before he died of asbestos exposure from working the shipyards during World War II. As a former hospital pharmacist, I am well aware of its dangers.

Interestingly, the California "State Rock" is serpentine, which is the world's principle source of "chrysotile" long fiber asbestos. It occurs naturally all through the California coast ranges between Los Angeles and southern Oregon. We still have found no suitable good substitute for replacing in this form of asbestos in auto brake linings, thus some airborne asbestos will be produced every time you push your brake peddle.

Thus, I found it difficult to believe when an employee of Calaveras Asbestos Company told me they had stopped supplying asbestos to Fuller O'Brien Paint Company, the manufacturer of the "O-Ring" sealant for the space shuttle. Asbestos was used to strengthen and increase heat resistance in the booster rockets. I was told NASA was following EPA guidelines to remove a hazardous substance from the shuttle program. My source also said they found no suitable replacement and the Challenger Space Shuttle failure may well have been related to the removal of asbestos from the sealant! I found this hard to believe, as this small amount of asbestos should be of no threat to the population, especially with hundreds of thousands of automobiles in southern Florida using asbestos brake linings. I passed this information on to a White House Staffer when I was in Washington in the last year. The Staffer never did answer my question "did the Challenger tragedy come from environmental hysteria over asbestos?" However, an article in the Detroit News, March 1, 1990 quotes Dr. Malcolm Ross, one of the world's leading experts on asbestos, of the U.S. Geological Survey..."There is no doubt in my mind that the Challenger disaster was caused by EPA's asbestos paranoia"!

Mr. Chairman and members of the sub-committee, most of the anti-mining hysteria that has been fed to the media does not fit the reality of the existing location system under the present law. The U.S. Mining Law is about as out-of-date as the free enterprise system, or the National Park System which was signed into law by President Grant in 1872!

The National Inholders' Association and the mining industry are as strongly opposed to isolated cases of fraud or misuse of the Mining Law as anyone. Strict enforcement of the current provisions of the law can reduce the bulk of the infractions. But, the repeal of the existing law by the proposed bill is not justified. We don't close down the interstate just because a few irresponsible drunk drivers use it, and we don't shut down Congress because of an occasional legislator that abuses the public trust.

The existing Mining Law is "not broken" and does not need fixing!!

Appendix are attached as part of this testimony.

Appendix A–1

Tungsten Mineralization at the Andrew Curtis Mine, Mount San Antonio Quadrangle, Los Angeles County, California

GEOLOGY AND MINERAL WEALTH OF THE CALIFORNIA TRANSVERSE RANGES © South Coast Geological Society 1982

Mark E. Unruh, 1006 E. Commonwealth, Fullerton, California, 92631 and Donald P. Graber, Curtis Tungsten Corporation, 855 W. 23rd Street, Upland, California 91786

SUMMARY

This occurrence is a new world-class scheelite deposit capable of supplying up to 20% of the United States' yearly demand for tungsten. It is located in the rugged San Gabrial Mountains 40 miles east of Los Angeles, in the Sheep Mountain Wilderness Study Area. Total reserves are on the order of 500 million lbs. of tungsten. Of this, 50 million lbs. are in the measured and indicated category and at present-day prices would be valued at about $300 million.

INTRODUCTION

The Andrew Curtis Tungsten Mine is located in the eastern San Gabriel Mountains, approximately forty miles east of Los Angeles, California (Figure 1). The deposit and its processing plant are situated in Cattle Canyon, Sections 12, 13, 14, 22, 23 and 27 of Township 2 North, Range 8 West, San Bernardino Base and Meridian (Figure 2).

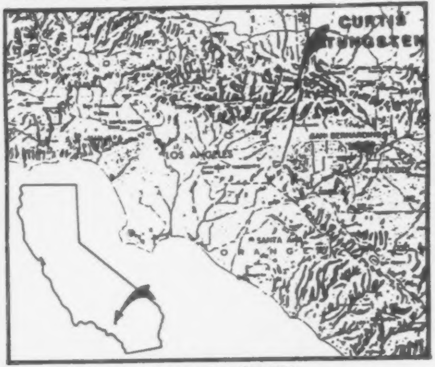

Figure 1. Location map.

The climate of Cattle Canyon is typically sub-alpine with heavy snowfall during winter months and locally severe thunderstorms. Temperatures vary from 0°F to 90°F in the canyon bottom. Generally, nine months out of the year, the mine is accessible from the Glendora Ridge Road via U.S. Forest Service Road #2N06. It may also be reached by Forest Service Road #2N04 through the bottom of San Gabriel Wash, though trucks or heavy traffic cannot use this 4-wheel drive road. Because the Glendora Ridge access road (#2N06) reportedly passes through a Nelson's Big Horn Sheep lambing ground, this truck haul road is closed by the Forest Service from April to June each year.

The deposit is the result of the injection of hot ore-bearing fluids into rocks of the upper plate of the Vincent thrust during the Tertiary. The principal mineral mined is scheelite ($CaWO_4$). Current mining is from talus deposits on the north slope of Cattle Canyon and lode deposits north of the Curtis mill site (Photo 1).

The deposit was located in the late 1950's by Andrew Curtis. Ronald L. Curtis, his son, operates the mine today. Total reserves, indicated, infered and measured (U. S. Bureau of Mines, 1980), amount to 525,000,000 pounds of tungsten. A processing plant on site operates five days a week. By 1985 Curtis Tungsten expects to have production levels of approximately 2,000,000 pounds per year. It is possible that this mine could supply 20% of the total U.S. production by 1990.

GEOLOGIC SETTING

The San Gabriel Mountains consist of uplifted blocks of crystalline metamorphic and igneous rock ranging in age from Precambrian to Miocene. These were uplifted during late Tertiary to the present time (Evans, 1977; Ehlig, 1982).

The great topographic relief is the result of streams cutting into the uplifted fault blocks and forming deep canyons with steep sides and coarse, gravel floors. Most of the canyons are controlled by erosion along faults. There is evidence that Cattle Canyon is at least partially controlled by erosion along a large northeast trending fault zone. The mine area is bounded by four major faults: the San Gabriel fault on the south, the San Antonio fault and Vincent thrust fault to the east and the Weber fault to the west.

The host rocks for this deposit consist of Mesozoic to Pre-Cambrian rocks. They are augen gneiss, biotite gneiss, porphyritic dikes and sills of basaltic to dacitic composition, quartz monzonite and diorite. The structural grain generally strikes north 36° to 40° west and dips 41° to 43° southwest. Slickensides and displacement of dikes indicate multiple faults and fracture zones throughout the area. These strike north 70° to 90° east and dip steeply to the north (Ridenour and Schmauch, 1977). The gneisses are part of the upper plate of the Vincent thrust and are reported (Ehlig, 1982, this volume) to have been thrust into their present position about 60 million years ago, during the Paleocene.

Sheelite veins are found in the Mt. Lowe Granodiorite which intrudes the gneiss in the south. A quartz diorite is found on the north which also has some small sheelite bearing veinlets.

ECONOMIC GEOLOGY

The principal mineral of economic importance on the Curtis Tungsten properties is scheelite ($CaWO_4$) or calcium tungsten. It occurs in three distinct types of deposits: (1) primary lode deposits; (2) talus cone placer deposits; (3) flood plain placer deposits.

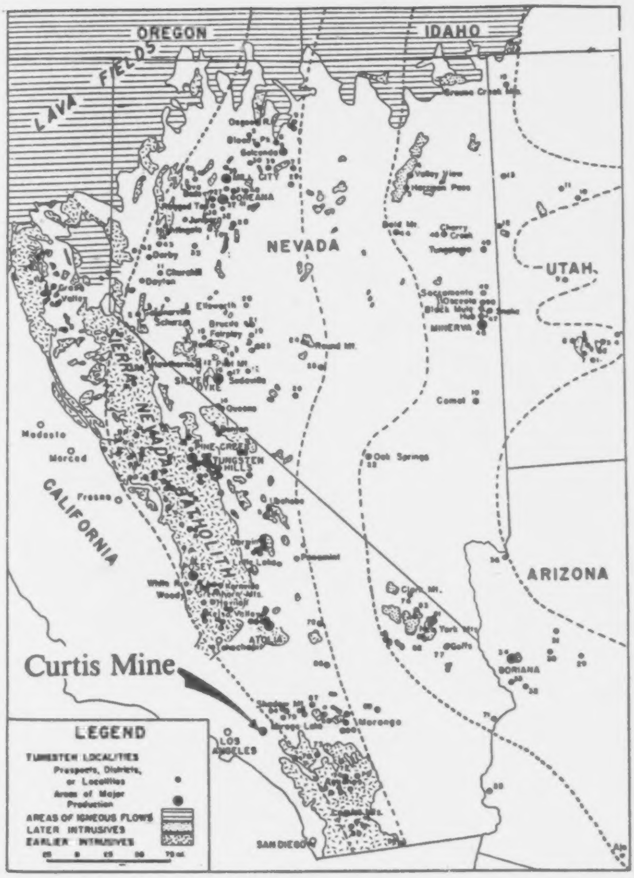
OREGON
IDAHO
LAVA FIELDS
NEVADA
UTAH
ARIZONA
CALIFORNIA
SIERRA NEVADA BATHOLITH
Modesto
Merced
Fresno
LOS ANGELES
SAN DIEGO
Curtis Mine
LEGEND
TUNGSTEN LOCALITIES
Prospects, Districts, or Localities
Areas of Major Production
AREAS OF IGNEOUS FLOWS
LATER INTRUSIVES
EARLIER INTRUSIVES

Figure 6. Geographic relationship between Andrew Curtis Tungsten Mine and tungsten localities of the western U.S. (after Kerr, 1946).

CONCLUSIONS

The mine is a potentially important domestic producer of a strategic mineral of which almost 70% of our current consumption is dependent on foreign supplies. Note that most of the known world reserves of this strategic mineral are found in communist or third world countries that are potentially hostile to the United States. In times of national emergency these sources may be extremely unreliable or non-existent.

When environmental problems are resolved and mining operations in Cattle Canyon can produce year round, the Andrew Curtis Tungsten Mine will be an important producer and potentially a world class tungsten deposit.

Kerr (1946) published a synthesis of western Cordilleran tungsten deposits. As part of that work he compiled a map (Figure 6) which indicates a zone or belt of tungsten mineralization trending north-south through eastern California. A casual comparison appears to represent an extension of the western Cordilleran belt of tungsten mineralization (Kerr, 1946) westward into the California Transverse Ranges (Figure 6). This strongly suggests that similar deposits may exist in adjacent areas of the Transverse Range province.

Appendix B

Economic Evaluation of Pine Mountain Phosphate Deposit, Ventura County, California

GEOLOGY AND MINERAL WEALTH OF THE CALIFORNIA TRANSVERSE RANGES © South Coast Geological Society 1982

James R. Evans, Bureau of Land Management, 63 Natoma St. Folsom, CA 95630

INTRODUCTION

Mining of a phosphate deposit in the Los Padres National Forest near Pine Mountain, Ventura County, California (figure 1) by U. S Gypsum Company, has been under consideration by the U.S. Bureau of Land Management since the middle 1960s. The area of the deposit is environmentally sensitive and governmental agencies and citizens are concerned because (1) the California condor nests in the Sespe Condor Sanctuary about 30 miles to the southeast, (2) haul trucks from the mine will increase traffic on State Highway 33, and (3) mining may disturb the scenic beauty of the area.

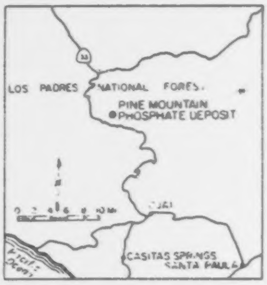

Figure 1. Location of the Pine Mountain phosphate mine. Ventura County, California.

A 2-year prospecting permit for phosphates was issued to U.S. Gypsum Company on 1 November 1964 by the U.S. Bureau of Land Management. On 17 October 1966 the permit was extended for a 3-year period. In April 1969 the company filed an application for a preference right lease. A draft environmental impact statement (EIS) on the proposed mining was submitted to the President's Council on Environmental Quality by the U. S. Bureau of Land management on 12 July 1971. A final EIS was issued in June of 1976. Public hearings have been held at each stage in the process.

The Division of Mines and Geology studied the proposed operation, and the market it would serve, to determine the place of the operation in that market and the possible impacts.

PINE MOUNTAIN PHOSPHATE DEPOSIT

Occurrence

The Pine Mountain phosphate deposit is near Chorro Grande Canyon about 12 miles north of Ojai in Ventura County, California (figure 1). The deposit occurs in the upper Miocene Santa Margarita Formation which strikes in a west northwest direction, and dips generally north at moderate angles. The phosphatic beds crop out for about 6 miles along strike, and in the deposit area they are warped into a tightly folded syncline which is overturned to the south. Outcrops on the north and south are truncated by the Pine Mountain fault.

The phosphatic member is about 200 feet in average thickness, and is composed of mudstone, phosphatic mudstone, phosphorite, and bentonite. The phosphatic mudstone is composed of phosphatic pebbles, broken fragments of phosphate-bearing materials, phosphatized teeth, bones and shells, and interstitial cementing materials of phosphatite minerals (Lowe, 1969, p. 58). Most of the phosphatic material is apparently very fine-grained carbonate fluorapatite.

MINERALOGY

U.S. Gypsum Company reports that the central 90 feet of the phosphatic member is rich enough to be of interest for mining (U.S. Bureau of Land Management final EIS, 1970). The average mineral composition is: carbonate fluorapatite, 21.5% (about 8.5% P_2O_5); quartz, 52%; clay, 13% carbonate 6.0%; gypsum, 2.0%; organic material, 4.5%; miscellaneous, 1.0%. By means of core drilling and trenching the U.S. Gypsum Company has estimated that there are 25 million tons of measured resources, and about 75 million tons of inferred resources of about 8.5% P_2O_5.

Operational Plan

The company proposes to mine about 588,000 tons per year of ore containing about 8.5% phosphorus pentoxide (P_2O_5) equivalent from the Miocene Santa Margarita Formation. Measured reserves of phosphate-bearing material would last about 43 years at the proposed mining rate. Material would be extracted from 5 open pits which would be opened one at a time with subsequent reclamation of each pit. Over the 43 year period about 495 acres would be disturbed by the mining, plant operation, and construction of roads.

The phosphate-bearing material would be processed in a 50,000 ton per year P_2O_5 plant at the mine by acid leaching, precipitation, and settling. The products produced would be dicalcium phosphate ($CaHPO_4 \cdot 2H_2O$), phosphoric acid (H_3PO_4), and gypsum ($CaSO_4 \cdot 2H_2O$). Substantial tonnages of all 3 proposed products are used in California's agricultural industry.

PHOSPHATES AND AGRICULTURE

Commercial Use

Phosphate-bearing rocks are the source of phosphorus compounds that are necessary in fertilizers and animal feed supplements used in California's agricultural industry. Most soils contain some form of soluble and insoluble phosphorus compounds. Plants take up phosphorus, and it is in turn passed on to animals that eat the plants. In intensely cropped soils the phosphorus can be readily depleted and it is beneficial to

Appendix C

Park Service Exports Jobs and Taxbase

By Don Fife

Death Valley, Ca. — Pfizer Corportation's Minerals and Pigments Division has given up the ghost at the famous world-class Grantham Talc Mine in Warm Springs Canyon. This mine was created through the efforts of Death Valley's famous pioneer lady miner Louise Grantham more than forty years ago. It is one of the largest talc mines in North America with reportedly more than 2,000,000 tons of proven ore still in place and the potential for millions of tons more. Talc is used as a major component in baby powder, cosmetics, paints, filters, tile, and ceramics.

Pfizer's official news release talks of "foreign competition" as the reason for the closing, but it is common knowledge locally that overzealous Park Service and other government regulations made it uneconomic to operate inside Death Valley National Monument. Since the anti-mining "Mining in the Parks Act" was passed in September 1976, both large and small mining claim holders have been systematically driven out of business in this mineral rich 2.2 million acre national monument.

According to a 1981 General Accounting Office (GAO) report (EMD-81-119 and EMD81-119S), Park Service officials testified in 1976 that there was "50,000 mining claims in Death Valley National Monument and that the monument was in danger of being stripped mined away"! After Congress was mis-informed and mislead into closing society's access to the mineral resources of Death Valley, it was learned there were only 863 mining claims. Of several hundred small miners whose "valid rights" were supposedly protected (the same clause is contained in Alan Cranston's S-7) only two small miners (at Bull Frog and Skidoo) were able to successfully defend themselves against defacto seizure by the National Park Service.

Now, eleven years later, even the large miners like Pfizer have been put out of business. All the men and women employed by Pfizer in talc operations in Inyo and San Bernardino Counties have been let go, and the local tax base associated with these operations is gone. To add insult to injury, Pfizer is reportedly building a new state-of-the-art talc mill in the Peoples Republic of China to process Chinese talc. Thus, more American taxbase, technology, and jobs have been exported overseas.

THE
NATIONAL
INHOLDER NEWS

SAVE
SMALL MINERS
AND
1872 MINING LAW

80,000 CIRCULATION
NOVEMBER-DECEMBER 1987

Appendix D-1

Special Issue **February 25, 1990 - March 11, 1990**

THE ENVIRONMENT:
RISK AND REALITY

The Detroit News

615 Lafayette Boulevard, Detroit, Mich. 48226

Did Challenger Disaster Result From the Asbestos Hysteria?

By Warren T. Brookes

This week's made-for-TV movie on the space shuttle Challenger gave close attention to the internal NASA debate about whether the shuttle's "O-rings" would work in the unusually cold weather at the time of the 1986 launch. As we now know, they didn't. Superheated gases blew past the O-rings and caused the huge fuel tanks to explode, sending the seven-man crew to a fiery death.

What has received almost no public attention at all is the reason the O-rings failed. As it turns out, the Challenger and its crew may have been the victims of an asbestos witch-hunt by the Environmental Protection Agency that is costing the nation more than $9 billion a year.

That witch-hunt forced the withdrawal of an asbestos-based putty that had been used in rocket boosters with complete safety for 15 years. The putty was an off-the-shelf product manufactured by Fuller O'Brien Paint Co. of San Francisco. It was selected by Morton Thiokol and NASA because of its ability to hold a seal against the superheated gases of

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TheDetroitNews **Page 13**

The Asbestos Risk in Perspective

Cause	Deaths Per Million
Asbestos Exposure in Schools	0.005-0.093
Whooping Cough Vaccinations	1-6
High School Football	10
Drowning (age 5-14)	27
Motor-Vehicle Accidents (Pedestrian — ages 5-14)	32
Home Accidents (ages 1-14)	60
Long-term smoking	1,200

Source: Science magazine, Jan. 19, 1990

> “There is no doubt in my mind that the Challenger disaster was caused by EPA's asbestos paranoia.”
>
> **Dr. Malcolm Ross**
> U.S. Geological Survey

missile launches.

But the environmental crusade to drive all asbestos products off the market raised the specter of lawsuits, so NASA and Thiokol decided to replace the standard O-ring. A new O-ring, made with different materials, was soon developed. But as a 1985 NASA report said, “the first 12 flights [after the putty changed] had four occurrences of O-Ring erosion.”

NASA ENGINEERS warned in 1985 that “the prime suspects . . . include the use of a new type of putty. The putty formerly in use was removed from the market by EPA because it contained asbestos. . . .” The engineers correctly predicted possible launch disaster from seal failure. Last November, the National Research Council panel on redesign of the shuttle booster agreed that one of the major problems with the O-Ring joints was “the inability of the [new] putty . . . reliably to effect a pressure seal.”

As Dr. Malcolm Ross of the U.S. Geological Survey (USGS), one of the world's leading experts on asbestos, said, “There is no doubt in my mind that the Challenger disaster was caused by EPA's asbestos paranoia.”

Sadly, there is widespread scientific consensus that while asbestos still represents a significant but controllable hazard to workers, the short-fiber chrysotile asbestos most common in buildings and schools has always been an insignificant risk to the general public. Removing it is far more risky than any health benefits derived from removal.

That was the explicit conclusion of an international symposium of scientists from the United States, Canada and Europe at Harvard last August, published in a carefully peer-reviewed paper in Science magazine, the publication of the American Association for the Advancement of Science, on Jan. 19.

THE AUTHORS of that paper, led by Dr. B.T. Bossman of the University of Vermont, concluded that “Available data do not support the concept that low level exposure to asbestos is a health hazard in buildings and schools.” This is not new. In 1985, Sir Richard Doll, Oxford University's renowned cancer researcher, concluded that “asbestos in buildings is responsible for approximately one death per year in the whole of Britain.” That would translate into five in this country.

In 1984, a three-volume Canadian Royal Commission report concluded “asbestos in building air will almost never pose a health hazard to building occupants.” The same year, the New Jersey State Asbestos Policy Committee agreed with the Canadian report, telling the governor “there are no documented cases of lung cancer associated with low-level asbestos exposure over a lifetime.”

The EPA was told all of this by the USGS's Ross in 1978, 1979 and 1984, when he briefed then EPA Administrator William Ruckelshaus on the Canadian and British findings — only to have his advice dismissed out of hand. Instead, in 1987 Congress passed and President Reagan signed a bill called the Asbestos Hazard Emergency Response Act (AHERA). It directs the EPA to inspect and “remediate,” where necessary, some 733,000 public and commercial buildings containing asbestos. The bill was authored by Rep. James Florio, now governor of New Jersey.

While EPA estimates the ultimate cost of AHERA will be more than $52 billion, the Science article asserts that “because of uncertainties regarding the amount of asbestos and its condition in these buildings, estimates for removal are now as high as $100 to 150 billion.”

HOW DID the American people wind up with this kind of tab for a problem of modest proportions? The answer lies in EPA's basic commitment to theoretical “risk models” rather than reality.

Those models base their risk estimates on experience among workers or with laboratory animals exposed to very high doses of the offending substance. This experience is then extrapolated to the population at large, which on average is exposed to much lower doses. As the Science magazine article says, this method of estimating general risk “is open to question.” The basic rule of toxicology is that “the dose makes the poison.” People are exposed to potentially lethal substances every day, but because the doses are so low they do no harm.

Epidemiological studies of populations exposed to asbestos in buildings for decades show no actual evidence of risk. And even at that, the EPA calculations show that risks of asbestos-related death (from both lung cancers and mesotheliomas) due to exposure in schools are magnitudes lower than commonplace risks

Appendix D–3

in modern day society. Whooping cough vaccinations, for example, are up to 1,200 times more risky.

Says the Science magazine article: "Clearly the asbestos panic in the U.S. must be curtailed, especially because unwarranted and poorly controlled asbestos abatement results in unnecessary risks to young removal workers who may develop asbestos related cancers in later decades."

This means billions spent unwisely, not to mention potential unnecessary harm to asbestos removal workers. School districts across the country are being forced to channel huge sums into rehabilitation programs that could be better spent on education itself. Older buildings in the nation's urban areas are going unsold because of liability fears raised by the EPA campaign. And seven brave astronauts were blown out of the sky because of O-rings from which the asbestos had been purged.

— *March 1*

Appendix E

SCIENCE

2 MARCH 1990
VOLUME 247
NUMBER 4946

The Asbestos Removal Fiasco

Removal of asbestos from buildings could cost as much as $50 to $150 billion. The content of asbestos fibers in the air of buildings containing asbestos is harmlessly small and essentially the same as in outdoor air.* Asbestos in buildings, unless damaged, does not shed fibers. The removal process releases asbestos fibers which could result in more cancer in the workmen than would have resulted in the usual occupants had the asbestos been left in place.

A puzzling defect in federal legislation and regulations is an arbitrary lumping together of disparate minerals and calling the lot of them asbestos. As a result, chrysotile, a serpentine mineral, is tarred with association with the dangerous amphibole crocidolite. The two minerals differ in composition, color, shape, solubility, and persistence in human tissue. Chrysotile is a white mineral with composition $Mg_6Si_4O_{10}(OH)_8$. It tends to be soluble and to disappear in tissue. Fibers tend to be curly and excluded from the periphery of the lung. Crocidolite is blue, has the formula $Na_2(Fe^{3+})_2(Fe^{2+})_3Si_8O_{22}(OH)_2$, and is relatively insoluble. It persists in tissue. Its fibers are long, thin, and straight and penetrate narrow lung passages. About 95 percent of the asbestos in place in the United States is chrysotile.

Another puzzling defect in federal performance is failure to give sufficient weight to epidemiological experience relating to chrysotile mines in Quebec. These mines have been operating since before 1900 and have produced about 40 million tons of chrysotile. In keeping with the lax practice of earlier days, mining operations were accompanied by large amounts of chrysotile dust. Wives of miners were heavily exposed; they dwelt in homes near the mines. Four epidemiological studies of the Quebec chrysotile mining localities show that lifelong exposure of women to dust from nearby mines caused no statistically significant excess disease.

The Environmental Protection Agency has fostered the view that a single fiber can cause cancer. This hypothesis is unproven. We live on a planet on which there is an abundance of serpentine- and amphibole-containing rocks. Natural processes have been releasing fibers throughout Earth history. We breathe in about 1 million fibers a year.

Another puzzle is a lack of expeditious effort by the EPA to obtain rigorous measures of indoor and outdoor levels of fibers. It is only recently that appropriate measurements have been made using transmission electron microscopy. Use of this equipment permits identification and quantitation of asbestos fibers. One would think that in a $50- to $150-billion program the first priority would be an accurate assessment of the problem. This lack of concern about determining the facts of exposure is also reflected in EPA policies with respect to schools.

Public and private schools are required to inspect for asbestos and to inform parents if asbestos-containing materials are present. Schools must submit a plan detailing how they will deal with damaged asbestos. They can be fined $5000 per day for failing to meet deadlines. The EPA has recommended bulk sampling and visual inspection to determine a course of action rather than measurement of airborne levels of fibers.

The removal process releases fibers into the air, sometimes creating greater concentrations of them than before the abatement work began. Remedial workers are being exposed to high occupational levels. EPA itself estimates that one half of all asbestos removal projects are done improperly.

Panic has not been confined to schools. Building owners broadly have been ripping out asbestos. If anything, the rush to remove asbestos is accelerating. EPA requires that asbestos be taken out of buildings before they are demolished or renovated. In addition, some owners have noted that the presence of asbestos has made it difficult to lease, sell, or insure asbestos-containing buildings. *The Environmental Contractor* has published an estimate that this year $7 billion will be spent on asbestos abatement—an increase of more than 30 percent during 1989. The estimate for 1993 is $11.5 billion.

The credibility of EPA has already been damaged. Unless policies are modified, the sums wasted in abatement and litigation will proliferate. Regulations should be modified to take into account the greatly differing hazards of the various asbestiform minerals. Standards for indoor air should be based on actual measurements of types and amounts of fibers.

—PHILIP H. ABELSON

Appendix F

Leshy's Insidious Attack On U.S. Freedom and The Mining Law

by Robert A. Sanregret

The Western Mining Council and NIA Mining Advisory Board

A particularly insidious book has hit the halls of Congress and the bookstores. This book is entitled *"The Mining Law: A Study In Perpetual Motion"* by John D. Leshy, of ASU Law School. The short title of this book is, deceivingly, *"The Mining Law"*.

Being a lawyer, I was somewhat interested in examining this new "mining law" book by an ASU Professor. However, I was outraged when I read Leshy's book and immediately saw that it was not a "law" book, but, rather, a slick and insidious attack on the laws and practices of our great country that have developed the Western U.S. since 1849. This book is insidious in that it "explains" the U.S. mining laws and practices strictly from the view of a "lock-it-up" super-environmentalist. The book is written in an entertaining and readable style, but Leshy writes under the bad-faith guise of a scholarly analysis and a "legal treatise", while presenting a grossly distorted view of the U.S. Mining Law and its benefits to America.

The 1872 Mining Law is a federal statute based upon the mining laws and practices of the 1850s and 1860s in the Western U.S. The Mining Law established a system of self-initiated mineral exploration which allows and encourages U.S. citizens to prospect for minerals on public land in the Western U.S. Also, most Western states have their own laws substantially affirming these rights of U.S. citizens under the federal Mining Law.

A U.S. citizen who discovers a mineral deposit on open public land may "locate" or "stake" a mining claim under the Mining Law, which then gives this "locator" the right to extract the minerals from the claim which he has staked. The process works today, just as it did in the 19th Century, to encourage mineral exploration and development on public land. This system of self-initiation is even more significant today with the exploration tools and transportation in use today being much more efficient than in the 19th Century. There are thousands of individual citizens today who are prospecting and searching the out-of-the-way areas of the U.S. deserts and mountains for minerals, precious metals and rare earths. This country's primary source of mineral properties today is the individual citizen-prospector who locates a mining claim upon which he has made a valuable mineral discovery.

Professor Leshy mischaracterizes the "incentive system" of the 1872 Mining Law, and the $2.50-$5.00/acre fee for patenting, as a giveaway of land by the federal government. However, Leshy fails to observe that the prospector may have "earned" his right to the minerals because of his initiative and his discovery of the minerals. Professor Leshy further fails to point out the fact that the actual cost of developing and patenting a mining claim is over $2,000/acre—the $5.00/acre being merely equivalent to a filing fee.

It is true that the federal government does not receive a "sale price" for the patented land, *but* it is *not government land*, it is *public land*. The good Law Professor Leshy apparently forgot, or ignored, the 10th Amendment's clear provision that rights not expressly granted to the federal government belong to the states or *to the people*—including the right to explore and develop minerals on public domain lands. You might briefly review your U.S. Constitution, Professor Leshy.

Leshy fails to observe that the 1872 Mining Law is the purest remaining example of self-initiation and "free enterprise" in the U.S. today.

The process of mineral exploration under the 1872 Mining Law has effectively identified and "inventoried" critical and strategic minerals, rare earths, etc., in the vast Western U.S. The Soviet Union has roughly *three times* the undeveloped mineral areas of the U.S.; and, God forbid that the Soviets were to ever adopt such an effective "incentive system" of mineral exploration as our 1872 Mining Law. If the Soviets were to effectively explore and develop their vast mineral reserves, they would "bury" us economically, much as the Japanese have done what they were unable to do militarily—that is, literally, bury us with their production of steel, T.V.s and automobiles.

Just last summer one of the largest talc mines in the U.S. closed down completely and moved all of its plant and technology to Mainland China to mine and process talc there, and to sell talc to the U.S. at the increased process prices—directly resulting in further millions of dollars of increase in the U.S. trade deficit, because the U.S. will no longer export talc, and will now import expensive processed talc from China at premium prices.

The Mining Law and the U.S. Constitution have both survived well over 100 years, with only minimal amendments; and both are vibrant and working well today. If it is not broken, don't fix it. Our government should not jump into premature action on legislation. In 1890 critics of the U.S. Patent Office suggested that it be closed down because everything had already been invented. Leshy's labeling of the Mining Law as "outdated" is false. The Mining Law is no more outdated than its basis—free enterprise and individual self-initiative.

Leshy's book is an intellectually dishonest effort to influence legislation to conform to the personal environmentalist views of Leshy and his associates. The book is a direct appeal to the majority of U.S. citizens and legislators who are essentially uninformed about the great American free enterprise operation of the 1872 Mining Law. Leshy did not write this book as a scholarly treatise, but, rather, as an insidious, unfair and misleading lobbying tool. The environmental groups who "commissioned" Leshy's book have printed and distributed hundreds of copies to our U.S. Congressmen and Senators under the guise of being an "erudite and balanced treatise".

When and if you read Leshy's book, please remember to also read the 10th Amendment, the U.S. trade balance figures and U.S. history. At the risk of being repititious, I shall conclude with a one word summary of Leshy's "Mining Law" book: Insidious! ☐